Medicare Participating Heart Bypass Center Demonstration:

Final Evaluation Report: Appendices to Volume I

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APPENDIX 3

CALCULATIONS OF 1992 UPDATE AMOUNTS

ATTACHMENT

CALCULATION OF 1992 UPDATE AMOUNTS

I. OVERVIEW OF PART B CALCULATION

A. RBRVS Update Calculation

The Part B estimate of 1992 payments was derived by combining RBRVS rates for specific CPT-4 codes of the most essential physician services for DRG 106 and DRG 107 with estimates of other physician services typically occurring during the CABG surgical episode.

In determining the most typical mix of services for an inpatient heart bypass graft surgical episode of care, 36 DRG 106 cases and 78 DRG 107 cases submitted from Saint Joseph's Hospital of Atlanta under the demonstration were reviewed. The most frequently occurring CPT-4 codes were listed along with the average number of units or occurrences per case. The CPT-4 code for the three graft bypass surgery was used as a conservative representation of the typically occurring bypass surgery code. These are listed as follows:

	Number of Service Units		
	DRG106	DRG107	CPT-4 Code
Surgery	1	1	33512
Arterial Cannulation	3	3	36620
Assistant Surgeon	1	1	33512ASQ
Anesthesiology	20	20	00562
Swan - Ganz Catheter	1	1	93503
Cardiac Catheterization	1	0	93547
Electrocardiogram	5.4	5.1	93000
Radiological Exam 1 view	5.8	6.4	71010
Radiological Exam 2 view	2.8	2.9	71020
Initial Physical Exam (discontinued - replaced by 99223)	1	1	90220
Intermediate Exam (discontinued - replaced by 99233)	4.4	4.4	99173
Follow-up Exam (discontinued - replaced by 99231)	3	3	90260

Resource Based Relative Value Scale rates were derived by applying the method of calculation described in the November 25, 1991 *Federal Register* (volume 56, No. 227) to the bundle of physician services provided for a CABG surgical episode. The formulas for calculation of the rates are written below. The data for these calculations were derived

from two sources. The carrier based units and units by CPT-4 code for work, practice cost and malpractice expense are listed in the *Federal Register*. The Historical Payment Amount was obtained from the Medicare Carrier for each hospital.

Formulas:

1. Fee Schedule Payment Amount Formula:

$$A = ((w * W) + (p * P) + (m * M)) * F$$

Where:

w = Relative Value Unit by CPT4 code for Work
p = Relative Value Unit by CPT4 code for Practice Cost
m = Relative Value Unit by CPT4 code for Malpractice Expense
W = Carrier Based Geographic Cost Index for Work
P = Carrier Based Geographic Cost Index for Practice Cost
M = Carrier Based Geographic Cost Index for Malpractice Expense
F = National Conversion Factor

2. Transition Payment Amount Formula:

If $A > (1.15 * B)$ then $Y = (A - (0.15 * B))$
If $A < (0.85 * B)$ then $Y = (A + (0.15 * B))$
Else $Y = B$

Where:

A = Historical Payment Amount
B = Fee Schedule Payment Amount
Y = Transition Payment Amount

RBRVS transition payment amounts were calculated for each CPT-4 code listed above for your hospital.

The attached table shows the listing of historical payment amounts, RBRVS indices and the calculated transition amounts for each of the CPT-4 codes listed above (see Table 1). Note that these are the area wide amounts used by the Medicare Carrier and not hospital specific.

Next, the hospital specific 1991 Medicare allowed charge amounts were obtained for comparison with the transition amounts. Both the 1991 Medicare allowed amounts and the 1992 transition payment amounts were multiplied by the average number of units or

services for each CPT-4 code and the differences between each payment amount calculated. The sum of these differences became the RBRVS update amount (see Table 2).

B. Data Source for the Calculation of the Resource Based Relative Value Scale (RBRVS) and Fee Schedule Payment Amount

The following section lists relevant data sources used in the calculation of the fee schedule adjustment. The documentation used to calculate the RBRVS rates are contained in the *Federal Register*, Volume 56, Number 227, Monday, November 25, 1991, Part II, Department of Health and Human Services, Pages 59502 to 59819.

The Formula is contained in Addendum A pages 59629 to 59630, entitled *Technical Documentation/Explanation and Guide to Use of Physician Fee Schedule Tables.*

Formula:

Payment= [(RVUw X GPCIw) + (RVUpe X GPCIpe) + (RVUm X GPCIm)] X CF

RVUw	=	physician work relative value units for the service
RVUpe	=	practice expense relative value units for the service
RVUm	=	malpractice relative value units for the service
GPCIw	=	geographic practice cost index value for physician work applicable in the fee schedule area
GPCIpe	=	geographic practice cost index value for practice expense applicable in the fee schedule area
GPCIm	=	geographic malpractice cost index value for physician work applicable in the fee schedule area
CF	=	uniform national conversion factor

CF - uniform nation conversion factor = 31.001
found on page 59630, *Federal Register* November 25, 1991

The **Relative Value Units (RVUs) and related information** are contained in the *Federal Register* November 25, 1991, Addendum B, pages 59635 to 59784.

For example:

HCPCS 33112 page B-37

HCPCS	Work RVUs	Practice Expense RVUs	Mal-Practice RVUs	Total RVUs
33512	26.41	38.61	6.76	71.78

The **Geographic Practice Cost Indices by Medicare Carrier Locality** are contained in the *Federal Register*, November 25, 1991, Addendum C, Pages 59785 to 59790 which lists the following:

Carrier Number	Locality Number	Locality Name	Work	Practice Expense	Mal-Practice
1040	1	Atlanta, Georgia	0.975	1.022	0.752

II. PART A PROSPECTIVE PAYMENT SYSTEM CALCULATION

A. Part A PPS Operating Rate Formula

The Part A update amount is the difference between the 1991 and 1992 DRG operating amounts. The 1991 and 1992 DRG rates were derived by applying the method of calculation described in the September 4, 1990 and August 30, 1991 editions of the *Federal Register*. This amount contains the basic DRG rate plus adjustments for teaching costs and disproportionate share cost and is calculated using the following formula:

DRG Operating Amount = [(DRGbp) + (DSP * DRGbp) + (IME * DRGbp)]

Where:
DRGbp = DRG Base Payment
DSP = Disproportionate Share Adjustment
IME = Indirect Medical Education Adjustment

The DRG Base Payment is computed as follows:

DRG Base Payment = ([(LS * Wg) + (nLS * COLA)] * (DRGwgt)

Where:

LS = Labor Share
nLS = Nonlabor Share
Wg = Wage Rate
COLA = cost of living adjustment
DRGwgt = DRG relative weight

Where Labor Share and Nonlabor Share are derived from:

IF [(NaLR+NaNLR) > (RaLR+RaNLR)]
THEN Labor Share = NaLR
AND Nonlabor Share = NaNLR

IF [(NaLR+NaNLR) < (RaLR+RaNLR)
THEN Labor Share = [(NaLR*.85) + (RaLR*.15)]
AND Nonlabor Share = [(NaNLR*.85) + (RaNLR*.15)]

Where:

NaLR = National Adjusted Standardized Amounts for Labor
RaLR = Regional Adjusted Standardized Amounts for Labor

and
NaNLR = National Adjusted Standardized Amounts for Nonlabor
RaNLR = Regional Adjusted Standardized Amounts for Nonlabor

In calculating the Labor Share and Nonlabor Share for each hospital, the National Adjusted Standardized Amounts for labor and nonlabor for large urban, or other urban areas is compared with each hospital's Regional Adjusted Standardized Amounts for that hospital's large urban or other urban area. If the national amount for labor plus nonlabor exceeds the regional amount for labor plus nonlabor, the labor share (or nonlabor share) equals the national amount for labor share (or nonlabor share). If the combined national amount is less than the combined regional amount, then the labor share (or nonlabor share) is equal to 85 percent of the national amount plus 15 percent of the regional amount for labor share (or nonlabor share).

B. Part A PPS Data Sources

1. Figures Used for the FY 1992 calculations:

The calculations for the Prospective Payment Rate for FY 1992 are based on the formula described on pages 43248 and 43249 of the *Federal Register*, Volume 56, Number 169, Friday, August 30, 1991. The same formula is used in the calculation of the Prospective Payment Rate for FY 1991 which is described on pages 36077 to 36079 (see Table 3)

The 1992 calculations based on figures obtained from the *Federal Register*, Volume 56, Number 169, Friday, August 30, 1991, Part IV, Department of Health and Human Services, Pages 43196 to 43524.

The **National Adjusted Standardized Amounts, Labor/Nonlabor** are contained in Table 1a on Page 43249. The figures for Large Urban hospitals are used. The **Regional Adjusted Standardized Amounts, Labor/Nonlabor** for Large Urban areas were taken from Table 1b on Page 43249. The **Wage Index for Urban Areas** is contained in Table 4a contained on pages 43274 to 43279. The **Relative Weights for DRG 106 and DRG 107** are contained in Table 5 on page 43284.

The **Disproportionate Share (DSH) and Indirect Medical Education (IME)** factors were based on the hospital specific values developed by HCFA that were used in developing the Fiscal Year Final Rules. The Disproportionate Share percentage is compiled from two components, the SSI component and the Medicaid component. For the SSI component, a list of disabled Social Security recipients receiving Supplemental Security Income (SSI) is compiled and matched against the Medicare Provider Analysis and Review (MEDPAR) files and the number of inpatient admission days for these individuals is counted per hospital. A ratio is calculated of this number divided by the total number of inpatient admission days for all Medicare patients. This ratio is the Medicare component of the

DSH. The Medicaid component of the DSH is the ratio of the number of inpatient admission days for all Medicaid patients listed in the hospital's cost report to the total number of inpatient admission days for all hospital patients. These two ratios are added together to reveal the Disproportionate Share patient percentage for that hospital. Finally, this DSH patient percentage is adjusted by the Medicare rules for Disproportionate Share to determine the DSH payment add-on.

The figure used for the Indirect Medical Education (IME) factor is obtained from information used by the Fiscal Intermediary for each hospital in pricing individual cases without accounting for the year end audit adjustment. This information is reported to HCFA as part of the Provider Specific File.

The **Cost of Living Adjustment** (COLA) for the continental United States is equal to 1.00.

2. Figures Used for the FY 1991 calculations:

The 1991 calculations are based on figures obtained from
Federal Register, Volume 55, Number 171, Tuesday, September 4, 1990, Part III, Department of Health and Human Services Pages 35990 to 36175 (see Table 3).

The **National Adjusted Standardized Amounts, Labor/Nonlabor** for large urban hospitals for 1991 are contained on page 36079 in Table 1A. The **Regional Adjusted Standardized Amounts, Labor/Nonlabor** for large urban areas are listed in Table 1b, page 36079. The **Wage Index for Urban Areas** for FY 1991 is listed in Table 4a, pages Page 36104 to 36109. The **Relative Weights for DRG 106 and DRG 107** are listed in Table 5, Page 36114. The **Disproportionate Share and Indirect Medical Education** factors for FY 1991 were derived in the same manner as that for FY 1992 using the appropriate earlier dated files.

III. THE 1992 GLOBAL PAYMENT UPDATE AMOUNTS

The DRG operating amounts for FY 1991 and FY 1992 were calculated (see Table 4). The difference between these amount formed the Part A adjustment amount. This amount was further adjusted by the RBRVS adjustment amount (Table 2) leaving the total 1992 update adjustment amount for each DRG. This amount was added to the 1991 global price amounts for DRG 106 and DRG 107 to reveal the 1992 global payment amounts (see Table 5).

APPENDICES TO CHAPTER 7

APPENDIX 7-A

ADDITIONAL TABLE OF LOGISTIC REGRESSION RESULTS ON INPATIENT MORTALITY FOR ALL SEVEN SITES

TABLE A7-1

POOLED INPATIENT MORTALITY LOGISTIC RESULTS FOR ALL SITES EXCLUDING HOSPITAL G

Variable	Odds Ratio	P-Value
INTERCEPT	0.00 ***	.01
HOSPITAL A	0.90	.74
HOSPITAL B	1.18	.61
HOSPITAL D	1.17	.69
HOSPITAL E	1.03	.95
HOSPITAL F	0.81	.74
HOSPITAL G	--	--
TREND	0.99	.29
URGENT	1.57	.12
EMERGE	2.50 ***	.00
UNSTABLE	1.45	.17
MI2WEEK	1.36	.31
PREVIOUS CABG	4.66 ***	.00
DRG 106	1.61 **	.02
CHF	1.42	.12
DIABETES	1.51 **	.04
RENAL	2.14 ***	.00
COPD	1.52 *	.06
STROKE	1.17	.55
HYPER	1.18	.39
AGE1	0.86	.68
AGE2	1.26	.50
AGE3	1.98 *	.06
AGE4	2.40 **	.03
FEMALE	1.47 *	.06
HEIGHT	0.53	.31
IABP	3.28 ***	.00
ARTERY70	1.03	.79
LMCA	1.17	.46
EJECTION FRACTION	0.98 ***	.01
No. Observations	3,274	
Overall Chi-Square (p-value)	173.68	.0001

*** indicates significance at the .01 level, ** at the .05 level, and * at .10.

Note: Hospital G was omitted from this regression due to convergence problems caused by G's small number of inpatient deaths.

Source: Abstracts of clinical records from the demonstration hospitals, May 1991 through December 1993.

APPENDIX 7-B

CLINICAL DATA COLLECTION INSTRUMENT

CLINICAL DATA COLLECTION FORM

FOR

CABG SURGERY PATIENTS

IN THE

MEDICARE PARTICIPATING HEART BYPASS CENTER DEMONSTRATION

GLOSSARY

DEFINITION OF ANGINA

Stable Angina:

Stable angina is a pattern of angina that is predictably brought on by the activities the patient engages in. It is promptly relieved or prevented by sub-lingual nitroglycerine and other antianginal medications. The frequency and severity of episodes do not vary to a significant degree from day to day.

Canadian Cardiovascular Society Classification of Angina:

Class 1:

Ordinary physical activity, such as walking and climbing stairs, does not cause angina. Angina with strenuous, rapid, or prolonged exertion at work or recreation.

Class 2:

Slight limitation of ordinary activity. Walking or climbing stairs rapidly, walking up hill, walking or stair climbing after meals, in cold, in wind, or when under emotional stress or during the first few hours after awakening may cause pain. Walking more than two blocks on the level and climbing more than one flight of ordinary stairs at a normal pace and in normal conditions.

Class 3:

Marked limitation of ordinary physical activity. Walking 1-2 blocks on a level and climbing one flight of stairs at normal conditions results in angina.

Class 4:

Inability to carry on any physical activity without discomfort. Anginal syndrome may by present at rest.

Unstable Angina:

A changing pattern of angina that has distinctly worsened in severity and frequency in comparison to the patient's previous pattern. The chest discomfort of unstable angina, while similar to stable angina, may be more intense and persist for longer periods of time, or may occur at rest.

DEFINITION OF CONGESTIVE HEART FAILURE (CHF)

Congestive Heart Failure is a difficult diagnosis. Usually it is clinically manifest by one or more features including: dyspnea on exertion (DOE- shortness of breath on exertion), bilateral pedal edema, fatigue, orthopnea (sleeping on two or more pillows to facilitate breathing), paroxysmal nocturnal dyspnea (PND - shortness of breath that awakens the patient from sleep). Other findings that support the clinical manifestations include but are not restricted to: presence of S3 gallop by auscultation, elevated jugular venous pressure > 8 cm H20 by physical exam, or radiographic evidence of pulmonary congestion. Verification by a physician's statement in the medical record is required.

Severity of Congestive Heart Failure (CHF) Classifcation:

Classification takes into account only physicial disability due to symptoms of CHF.

Class 1:

Patients with cardiac disease but without resulting limitations of physical activity. Ordinary physical activity does not cause undue fatigue, palpitations, or dyspnea.

Class 2:
Patients with cardiac disease that results in slight limitation of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitations, or dyspnea. Ordinary physical activity includes walking more than 2 blocks on level ground, climbing more than 1 flight of stairs at normal pace, walking uphill, walking or climbing stairs rapidly, walking or stair climbing under adverse conditions (cold, wind, emotional stress).

Class 3:
Patients with cardiac disease that results in marked limitation of physical activity. They are comfortable at rest. Less than ordinary activity causes fatigue, palpitations, or dyspnea. Less than normal activity includes walking 1 to 2 blocks on level ground or climbing 1 flight of stairs at a normal pace.

Class 4:
Patients with cardiac disease that results in inability to carry out any physical activity without symptoms of fatigue, palpitations or dyspnea. Symptoms may be present even at rest. If any physical activity is undertaken, symptoms are increased.

DEFINITION OF DISTAL DISEASE

1= Normal

2= Minimal:
Diffuse intimal thickening or mild plaque formation.

3= Moderate:
Diffuse intimal thickening or plaque formation with some luminal compromise.

4= Severe:
Diffuse intimal or plaque formation with significant luminal compromise.

DEFINITION OF EXCERCISE STRESS TESTING

Very Positive Stress ECG:
(a) During the first three minutes of the test (or onset at rate less than 120 beats/minute off beta-blockers, or less than 6.5 METS) the patient develops: (1) 1mm or more of horizontal or downsloping ST segment depression that present 80msec after the J-point or (2) the occurence of typical angina; OR (b) a decrease in systolic blood pressure of 20mm mercury or more; OR (c) more than 2mm of horizontal or downsloping ST depression at any time; OR (d) persistence of ST depression for greater than six minutes post-exercise.

Postive Stress ECG:
After the first three minutes of the test the patient develops: (a) 1mm or more of horizontal or downsloping ST segment depression that is present 80msec after the J-point OR (b) typical angina occurs.

Indeterminate or Negative Stress ECG:
Absence of any of the above findings.

DEFINITION OF THE URGENCY OF REVASCULARIZATION PROCEDURES

Elective:
Patient is undergoing CABG on an elective basis. The patient is clinically stable, and his/her overall medical condition does not require revascularization within 7 days.

Urgent:
Patient is undergoing CABG on an urgent basis. The patient may be unstable, have disease that warrants revascularization within 7 days, or the patient is stable but has suffered a complication or event within the past 14 days that substantially increases the risk of revascularization (e.g., myocardial infarction).

Emergent:
Patient is undergoing CABG on an emergent basis. The patient is unstable clinically, and his/her condition requires immediate revascularization (revascularization must occur within 24 hours).

DEFINITION OF "SHED BLOOD"

Intraoperative salvaging of patients own blood volume through a packing and washing process. Exudate is removed and the pure RBC content is then reinfused into the patient.

CLINICAL DATABASE ON CABG PATIENTS

HOSPITAL ID: _ _ 1-2

PATIENT ID: _ _ _ _ 3-6

SECTION A. PATIENT DEMOGRAPHICS

A-1) Name

Last: _____ 7-21

First: _____ 22-36

M.I.: __ 37

A-2) SSN: _ _ _ / _ _ / _ _ _ _ 38-46

A-3) Home Address

City: _____ 47-61

State: _ _ 62-63

Zip: _ _ _ _ _ 64-68

A-4) Birth Date (MM/DD/YY): _ _ / _ _ / _ _ 69-74

A-5) Sex (CIRCLE ONE) 75

Male 1

Female 2

A-6) Race (CIRCLE ONE) 76

Caucasian 1

Black 2

Hispanic 3

Asian 4

Native American 5

Other 6

SECTION B. CABG HOSPITALIZATION

B-1) Key Dates

Admission Date (MM/DD/YY): _ _ / _ _ / _ _ 77-82

Date of Coronary Angiography: (if applicable) _ _ / _ _ / _ _ 83-88

Date of PCTA: (if applicable) _ _ / _ _ / _ _ 89-94

Date of CABG: _ _ / _ _ / _ _ 95-100

Discharge Date: _ _ / _ _ / _ _ 101-106

B-2) Discharge Diagnoses

DRG: _ _ _ 107-109

Principal diagnosis:

ICD9 Code (if available)

_____ _ _ _ _ _ 110-114

_____

B-3) Referring Physician

Name

Last: _____ 115-129

First: _____ 130-144

Practice Address

City: _____ 145-159

State: _ _ 160-161

Zip Code: _ _ _ _ _ 162-166

Specialty (CIRCLE ONE) 167

Cardiologist 1

Primary Care Physician 2

Other 3

(PLEASE SPECIFY) _____

_____ _____ _ _ 168-169

Date of

B-4) Name of Principal CABG Surgeon

Last: _____ 170-184

First: _____ 185-199

SECTION C. CLINICAL HISTORY

C-1) Clinical Presentation for CABG Hospitalization (See Glossary) (CIRCLE ONE)

- Assymptomatic CAD off medications 1
- Stable Angina 2
- Unstable Angina 3
- Acute Myocardial Infarction 4
- Don't know 8

200

C-2) If patient presented with stable angina, please indicate the Canadian Heart Association Class: (See Glossary) (CIRCLE ONE)

- Class 1 1
- Class 2 2
- Class 3 3
- Class 4 4
- Don't know 8

201

C-3) If patient was admitted with an acute MI, time from onset of MI to date of CABG surgery: (CIRCLE ONE)

- < 7 days 1
- 8 - 14 days 2
- > 14 days 3
- Don't know 8

202

C-4) Type of cardiac medications at time of admission (CIRCLE ALL THAT APPLY)

- ACE Inhibitors ..... 1 — 203
- Antiarrhythmics ..... 1 — 204
- Anticoagulants ..... 1 — 205
- Aspirin ..... 1 — 206
- Beta Blockers ..... 1 — 207
- Calcium antagonists ..... 1 — 208
- Digitalis ..... 1 — 209
- Diuretics ..... 1 — 210
- Inotropic agents ..... 1 — 211
- Lipid-lowering agents ..... 1 — 212
- Long-acting nitrates ..... 1 — 213
- Persantine ..... 1 — 214
- Short acting nitrates ..... 1 — 215
- Vasodilators ..... 1 — 216
- Don't know ..... 1 — 217
- Other ..... 1 — 218

(PLEASE SPECIFY) _____

_____ _ _ 219-220

2

CARDIAC HISTORY

C-5) Previous myocardial infarctions: i.e. other than an acute MI responsible for this admission (CIRCLE ONE)

- None 1
- One MI 2
- Two MIs 3
- > Two MIs 4
- Don't know 8

221

C-6) If C-5 is YES, please indicate length of time from this most recent MI to date of CABG (CIRCLE ONE)

- <= 15 days 1
- 16 - 30 days 2
- 31 - 60 days 3
- > 60 days 4
- Don't know 8

222

< 7
8 - 14
15 - 30
31 - 60

C-7) History of congestive heart failure (CIRCLE ONE)

- Yes 1
- No 2
- Don't know 8

223

C-8) If C-7 is YES, please indicate the Canadian Heart Association Class (See Glossary)

- Class 1 1
- Class 2 2
- Class 3 3
- Class 4 4
- Don't know 8

224

C-9) Previous episode of cardiac arrest (CIRCLE ONE)

- Yes 1
- No 2
- Don't know 8

225

PREVIOUS CARDIAC PROCEDURES

C-10) Previous CABG (CIRCLE ONE)

- Yes 1
- No 2
- Don't know 8

226

IF C-10 IS YES, PLEASE PROVIDE DATES, OTHERWISE GO TO C-12

C-11) Most recent previous CABG (YY): __ __ 227-228

Next most recent: __ __ 229-230

Third most recent: __ __ 231-232

C-12) Previous PTCA (CIRCLE ONE)

Yes	1	
No	2	233
Don't know	8	

IF C-12 IS YES, PLEASE PROVIDE DATES, OTHERWISE GO TO C-14

C-13) Most recent PTCA (MM/YY): __ __ / __ __ 234-237

Next most recent: __ __ / __ __ 238-241

Third most recent: __ __ / __ __ 242-245

C-14) Valve replacement or repair (CIRCLE ONE)

Yes	1	
No	2	246
Don't know	8	

C-15) If C-14 is YES, please indicate valve(s) repaired or replaced (CIRCLE ALL THAT APPLY)

Mitral	1	247
Aortic	1	248
Pulmonic	1	249
Tricuspid	1	250

C-16) Other previous cardiac procedures (CIRCLE ONE)

Yes	1	
No	2	251
Don't know	8	

C-17) If C-16 is YES, please indicate which procedures (CIRCLE ALL THAT APPLY)

LV aneurysm	1	252
VSD	1	253
ASD	1	254
Cardiac trauma	1	255
Pacemaker	1	256
AICD	1	257
Other	1	258

(PLEASE SPECIFY) _____

_____ __ __ 259-260

C-18) Other vascular procedures (CIRCLE ONE)

Yes	1	
No	2	261
Don't know	8	

C-19) If C-18 is YES, please indicate which procedures (CIRCLE ALL THAT APPLY)

Aortic aneurysm	1	262
Carotid endarterectomy	1	263
Peripheral vascular	1	264
Other	1	265

(PLEASE SPECIFY) _____

_____ __ __ 266-267

COMORBID CONDITIONS

C-20) Previous stroke or TIA (CIRCLE ONE)

Yes	1	
No	2	268
Don't know	8	

C-21) Peripheral vascular disease (CIRCLE ONE)

Yes	1	
No	2	269
Don't know	8	

C-22) COPD on medications (CIRCLE ONE)

Yes	1	
No	2	270
Don't know	8	

C-23) Diabetes (CIRCLE ONE)

Yes	1	
No	2	271
Don't know	8	

C-24) If C-23 is YES, indicate medication(s) for diabetes (CIRCLE ONE)

Insulin	1	
Oral hypoglycemic	2	272
No medication	3	
Don't know	8	

C-25) Hypertension (CIRCLE ONE)

Yes	1	
No	2	273
Don't know	8	

C-26) If C-25 is YES, is patient taking medication for hypertension? (CIRCLE ONE)

Yes	1	
No	2	274
Don't know	8	

C-27) Chronic renal insufficiency (creatinine > 2 mg%) (CIRCLE ONE)

Yes	1	
No	2	275
Don't know	8	

C-28) If C-27 is YES, is patient on dialysis (CIRCLE ONE)

Yes	1	276
No	2	
Don't know	8	

C-29) Malignancy (CIRCLE ONE)

Yes	1	277
No	2	
Don't know	8	

C-30) If C29 is YES, please specify site of malignancy

Site :_____ _ _ 278-279

RISK FACTORS

C-31) Smoking history (CIRCLE ONE)

Never	1	280
Stopped	2	
Current	3	
Don't know	8	

SECTION D. PHYSICAL EXAMINATION CLOSEST TO CABG SURGERY

D-1) Height (FEET/INCHES): _ / _ _ 281-283

D-2) Weight (kg): _ _ _ 284-286

D-3) Blood pressure (mmHg): _ _ _ / _ _ _ 287-292

SECTION E. CARDIAC CATHETERIZATION DATA

E-1) Date of most recent catheterization or coronary angiography if not performed during CABG hospitalization (MM/YY): _ _ / _ _ 293-296

E-2) Hospital where procedure performed

Name: _____ 297-316

City: _____ 317-331

State: _ _ 332-333

E-3) Left ventricular ejection fraction (%) _ _ 334-335

E-4) Methods by which LVEF measured (CIRCLE ONE)

LV gram , estimated	1	336
LV gram, calcylated	2	
Radionuclide, estimated	3	
Radionuclide, calculated	4	
Echocardiogram	5	
Not available	6	
Other	7	

(PLEASE SPECIFY) _____

_____ _ _ 337-338

CORONARY ARTERY DISEASE ANATOMY

E-5) Please indicate the maximum percent stenosis for diseased coronary artery segments. Be as specific as possible in indicating the location of obstructions.

Coronary Artery Segment	Maximum % Stenosis	
Right Coronary Artery		
Prox RCA	_ _	339-340
Mid RCA	_ _	341-342
Dist RCA	_ _	343-344
Branches off RCA		
PDA	_ _	345-346
Posterior-Lateral	_ _	347-348
Left Coronary Artery		
LMCA	_ _	349-350
Prox LAD	_ _	351-352
Mid LAD	_ _	353-354
Dist LAD	_ _	355-356
Diagonal 1	_ _	357-358
Daigonal 2	_ _	359-360
CX	_ _	361-362
Obtuse Marginal 1	_ _	363-364
Obtuse Marginal 2	_ _	365-366
Obtuse Marginal 3	_ _	367-368

E-6) Method used to estimate degree of coronary artery stenosis (CIRCLE ONE)

Calipers	1	
Edge technique	2	
Eyeball	3	369
Don't know	4	
Other	5	

(PLEASE SPECIFY) _____

_____ _ _ 370-371

E-7) Any existing grafts? (CIRCLE ONE)

Yes	1	
No	2	372
Don't know	8	

SECTION F. PRE-OPERATIVE NON-INVASIVE TEST DATA:

RECORD ONLY RESULTS OF TESTS PERFORMED WITHIN TWO MONTHS OF CABG SURGERY. IF A TEST HAS BEEN PERFORMED MORE THAN ONCE WITHIN THIS PERIOD, RECORD RESULTS OF MOST RECENT TEST

F-1) Cardiac Rhythm (CIRCLE ALL THAT APPLY)

NSR	1	373
A Fib	1	374
SVT	1	375
First degree AV block	1	376
Second degree AV block	1	377
Complete AV block	1	378
PVCs > 10/minute	1	379
Episodes VT (runs of 3 or more PVCs)	1	380
Don't know	1	381

F-2) Evidence of carotid disease by ultrasound or angiography (CIRCLE ONE)

Yes - symptomatic	1	
Yes - asymptomatic	2	382
No	3	
Don't know	8	

F-3) ETT (See Glossary for definitions) (CIRCLE ONE)

Normal or minimally positive	1	
Strongly positive	2	383
Don't know	8	

F-4) Exercise or stress thallium shows ischemia-redistribution (CIRCLE ONE)

Yes	1	
No	2	384
Don't know	8	

F-5) Exercise gated blood pool shows fall in EF or new wall motion abnormalities (CIRCLE ONE)

Yes	1	
No	2	385
Don't know	8	

SECTION G. PRE-OPERATIVE CABG SURGERY RISK ASSESSMENT

G-1) Revascularization priority (See Glossary) (CIRCLE ONE)

Elective	1	
Urgent	2	386
Emergent	3	

G-2) Patient origin (CIRCLE ONE)

Ward	1	
CCU	2	387
Cath lab	3	
Other	4	

(PLEASE SPECIFY) _____

_____ _ _ 388-389

G-3) Anginal status at time of CABG surgery (See Glossary) (CIRCLE ONE)

Stable	1	
Unstable	2	390
Acute event	3	

G-4) Pre-operative use of IABP (CIRCLE ONE)

Yes	1	
No	2	391
Don't know	8	

G-5) Pre-operative use of thrombolytic agents (CIRCLE ONE)

Yes	1	
No	2	392
Don't know	8	

IF G-5 IS YES, PLEASE ANSWER QUESTIONS G-6 THRU G-8, OTHERWISE GO TO SECTION H

G-6) Thrombolytic agent used (CIRCLE ONE)

PTA	1	393
SK	2	
Other	3	

(PLEASE SPECIFY) _____

_____ _ _ 394-395

G-7) Time between use of thrombolytic agent and CABG (CIRCLE ONE)

Less than 6 hours	1	
7 - 24 hours	2	
25 - 48 hours	3	396
More than 48 hours	4	
Dont't know	8	

G-8) Hematocrit immediately prior to CABG surgery (%) ..... _ _ 397-398

SECTION H. OPERATIVE DATA

H-1) CABG Procedure (CIRCLE ONE)

First CABG	1	
Redo	2	399

H-2) Non-cardiac procedures performed (CIRCLE ALL THAT APPLY)

Aortic aneurysm	1	400
Cartoid endarterectomy	1	401
Other	1	402

(PLEASE SPECIFY) _____

_____ _ _ 403-404

H-3) Primary anesthetic technique (CIRCLE ONE)

Opioid / narcotic	1	
Inhalation	2	405
Combination	3	
Other	4	

(PLEASE SPECIFY) _____

_____ _ _ 406-407

H-4) Types of myocardial protection (CIRCLE ALL THAT APPLY)

Intermittent cross-clamp	1	408
Crystalloid cardoplegia	1	409
Blood carioplegia	1	410
Continuous perfusion / no cross clamp	1	411
Retrograde perfusion	1	412
Topical hypothermia	1	413
Other	1	414

(PLEASE SPECIFY) _____

_____ _ _ 415-416

H-5) Intra-op insertion of IABP (CIRCLE ONE)

Yes	1	
No	2	417
Don't know	8	

H-6) If H-6 is YES, please specify indication for IABP

_____

_____ _ _ 418-419

H-7) Intra-op insertion of VAD (CIRCLE ONE)

Yes	1	
No	2	420
Don't know	8	

H-8) If H-7 is YES, type of VAD (CIRCLE ONE)

LVAD	1	
RVAD	2	
BVAD	3	421
TAH	4	

H-9) Pacing required (CIRCLE ONE)

Yes	1	
No	2	422
Don't know	8	

H-10) If H-10 is YES, please specify type of pacing (CIRCLE ONE)

Atrial , temporary	1	
Atrial, permanent	2	
Ventricular, temporary	3	423
Ventricular, permanent	4	
Other	5	

(PLEASE SPECIFY) _____

_____ _ _ 424-425

H-11) Operative times (MINUTES)

Cross-clamp time:	_ _ _	426-428
Perfusion time:	_ _ _	429-431
Total anethesia time:	_ _ _	432-434

H-12) Intraoperative use of blood bank products in units

Whole blood:	_ _	435-436
RBCs:	_ _	437-438
FFP:	_ _	439-440
Cryo:	_ _	441-442
Platelets:	_ _	443-444

H-13) Shed blood used (See Glossary) (CIRCLE ONE)

Yes	1	445
No	2	
Don't know	8	

H-14) Condition of patient on leaving OR (CIRCLE ONE)

Alive	1	446
Dead	2	

CORONARY ARTERY BYPASS GRAFTS

H-15) Please complete the table for all bypass grafts and endarterectomies, USING KEY BELOW

Distal Disease:
1 = None
2 = Minimal
3 = Moderate
4 = Severe

Conduit:
1 = SV
2 = LIMA
3 = RIMA
4 = Free- LIMA
5 = Free- RIMA
6= GEPA
7= Free GEPA
8= Other

BYPASS GRAFT TABLE

Artery Segment Receiving Grafts	Distal Disease	Conduit	Endart (Y/N)	
RCA:				
Prox RCA	_	_	_	447-449
Mid RCA	_	_	_	450-452
Dist RCA	_	_	_	453-455
Branches off RCA:				
PDA	_	_	_	456-458
Posterior-lateral	_	_	_	459-461
LCA:				
Prox LAD	_	_	_	462-464
Mid LAD	_	_	_	465-467
Dist LAD	_	_	_	468-470
Diagonal 1	_	_	_	471-473
Diagonal 2	_	_	_	474-476
CX	_	_	_	477-479
Obtuse Marginal 1	_	_	_	480-482
Obtuse Marginal 2	_	_	_	483-485
Obtuse Marginal 3	_	_	_	486-488

H-16) Were any intended coronary artery lesions not bypassed? (CIRCLE ONE)

Yes	1	489
No	2	
Don't know	8	

H-17) If H-16 is YES, circle all lesions not bypassed (CIRCLE ALL THAT APPLY)

Coronary Artery Segment:		
Right Coronary Artery		
Prox RCA	1	490
Mid RCA	1	491
Dist RCA	1	492
Branches off RCA		
PDA	1	493
Posterior-lateral	1	494
Left Coronary Artery		
LMCA	1	495
Prox LAD	1	496
Mid LAD	1	497
Dist LAD	1	498
Diagonal 1	1	599
Diagonal 2	1	500
CX	1	501
Obtuse Marginal 1	1	502
Obtuse Marginal 2	1	503
Obtuse Marginal 3	1	504

SECTION I. POSTOPERATIVE COURSE

I-1) Postoperative pharmacological or mechanical support (CIRCLE ALL THAT APPLY)

High dose inotropic agents > 12 hours	1	505
New permanent pacemaker	1	506
LVAD	1	507
RVAD	1	508
IABP	1	509
Ventilator > 48 hours	1	510

I-2) Use of blood bank products during the first 72 hours p.o. (CIRCLE ONE)

Yes	1	
No	2	511
Don't know	8	

I-3) If I-2 is YES, please specify amounts in units

Whole blood:	__ __	512-513
RBCs:	__ __	514-515
FFP:	__ __	516-517
Cryo:	__ __	518-519
Platelets:	__ __	520-521

POSTOPERATIVE COMPLICATIONS

I-4) Did patient suffer any postoperative complications? (CIRCLE ONE)

Yes	1	
No	2	522
Don't know	8	

IF I-4 IS YES, PLEASE ANSWER QUESTION I-5 THRU I-20, OTHERWISE SKIP TO SECTION J

I-5) Reoperation (CIRCLE ONE)

Yes	1	
No	2	523
Don't know	8	

I-6) If I-5 is YES, reason for reoperation (CIRCLE ONE)

Bleeding	1	
Graft occlusion	2	524
Other cardiac	3	

(PLEASE SPECIFY) _____

_____

Other non-cardiac 4

(PLEASE SPECIFY) _____

_____ __ 525-526

I-7) Post-op MI presenting new Q-waves (CIRCLE ONE)

Yes	1	
No	2	527
Don't know	8	

I-8) Infection (CIRCLE ONE)

Yes	1	
No	2	528
Don't know	8	

I-9) If I-8 is YES, please specify (CIRCLE ALL THAT APPLY)

Sternum-superficial	1	529
Sternum-deep	1	530
Leg	1	531
IABP site	1	532
Septicemia	1	533
Other	1	534

(PLEASE SPECIFY) _____

_____ __ 535-536

I-10) Neurologic complications (CIRCLE ONE)

Yes, intra-op	1	
Yes, post-op	2	537
No	3	
Don't know	8	

I-11) If I-10 is YES, indicate type of neurologic complication (CIRCLE ONE)

Stroke-permanent	1	
Stroke-transient	2	538
Coma	3	
Other	4	

(PLEASE SPECIFY) _____

_____ _ _ 539-540

I-12) Pulmonary complications (CIRCLE ONE)

Yes	1	
No	2	541
Don't know	8	

I-13) If I-12 is YES, please indicate type of pulmonary complication (CIRCLE ALL THAT APPLY)

Pulmonary embolism	1	542
Pneumonia	1	543
Other	1	544

(PLEASE SPECIFY) _____

_____ _ _ 545-546

I-14) Renal failure requiring dialysis (CIRCLE ONE)

Yes	1	
No	2	547
Don't know	8	

I-15) Vascular complications (CIRCLE ONE)

Yes	1	
No	2	548
Don't know	8	

I-16) If I-15 is YES, please indicate type of vascular complication (CIRCLE ONE)

Aortic dissection	1	
Iliac / femoral dissection	2	549
Arterial embolus requiring treatment	3	
Other	4	

(PLEASE SPECIFY) _____

_____ _ _ 550-551

I-17) Other complications (CIRCLE ALL THAT APPLY)

Heart block requiring permanent pacemaker	1	552
Cardiac arrest	1	553
Anticoagulant complication	1	554
Tamponade	1	555
GI complications	1	556
Multi-system failure	1	557
Other	1	558

(PLEASE SPECIFY) _____

_____ _ _ 559-560

I-18) Died (CIRCLE ONE)

Yes	1	561
No	2	

IF I-18 IS YES, PLEASE ANSWER QUESTION I-19 AND I-20, OTHERWISE SKIP TO SECTION J

I-19) Date of Death (MM/DD/YY): _ _ / _ _ / _ _ 562-567

I-20) Cause of Death (CIRCLE ONE)

Cardiac	1	
Infection	2	
Neurologic	3	568
Pulmonary	4	
Renal	5	
Don't know	6	
Other	7	

(PLEASE SPECIFY) _____

_____ _ _ 569-570

SECTION J. DISPOSITION AT TIME OF HOSPITAL DISCHARGE

J-1) Discharge medications (CIRCLE ALL THAT APPLY)

ACE Inhibitors	1	571
Antiarrhythmics	1	572
Anticoagulants	1	573
Aspirin	1	574
Beta Blockers	1	575
Calcium antagonists	1	576
Digitalis	1	577
Diuretics	1	578
Inotropic agents	1	579
Lipid-lowering agents	1	580
Long-acting nitrates	1	581
Persantine	1	582
Short acting nitrates	1	583
Vasodilators	1	584
Don't know	1	585
Other	1	586

(PLEASE SPECIFY) _____

_____ _ _ 587-588

J-2) Discharge destination (CIRCLE ONE)

Home with family	1	
Home with Home Health Care	2	
Rehabilitation Facility	3	589
Skilled Nursing Facility	4	
Other	5	

(PLEASE SPECIFY) _____

_____ _ _ 590-591

APPENDIX 7-C

ONE-YEAR FOLLOWUP DATA COLLECTION INSTRUMENT

TWELVE MONTH FOLLOW-UP DATA COLLECTION FORM

FOR

CABG SURGERY PATIENTS

IN THE

MEDICARE PARTICIPATING HEART BYPASS
CENTER DEMONSTRATION

GLOSSARY

DEFINITION OF ANGINA

Stable Angina:

Stable angina is a pattern of angina that is predictably brought on by the activities the patient engages in. It is promptly relieved or prevented by sub-lingual nitroglycerine and other antianginal medications. The frequency and severity of episodes do not vary to a significant degree from day to day.

Canadian Cardiovascular Society Classification of Angina:

Class 1:

Ordinary physical activity, such as walking and climbing stairs, does not cause angina. Angina with strenuous, rapid, or prolonged exertion at work or recreation.

Class 2:

Slight limitation of ordinary activity. Walking or climbing stairs rapidly, walking up hill, walking or stair climbing after meals, in cold, in wind, or when under emotional stress or during the first few hours after awakening may cause pain. Walking more than two blocks on the level and climbing more than one flight of ordinary stairs at a normal pace and in normal conditions.

Class 3:

Marked limitation of ordinary physical activity. Walking 1-2 blocks on a level and climbing one flight of stairs at normal conditions results in angina.

Class 4:

Inability to carry on any physical activity without discomfort. Anginal syndrome may by present at rest.

Unstable Angina:

A changing pattern of angina that has distinctly worsened in severity and frequency in comparison to the patient's previous pattern. The chest discomfort of unstable angina, while similar to stable angina, may be more intense and persist for longer periods of time, or may occur at rest.

DEFINITION OF CONGESTIVE HEART FAILURE (CHF)

Congestive Heart Failure is a difficult diagnosis. Usually it is clinically manifest by one or more features including: dyspnea on exertion (DOE- shortness of breath on exertion), bilateral pedal edema, fatigue, orthopnea (sleeping on two or more pillows to facilitate breathing), paroxysmal nocturnal dyspnea (PND - shortness of breath that awakens the patient from sleep). Other findings that support the clinical manifestations include but are not restricted to: presence of S3 gallop by auscultation, elevated jugular venous pressure > 8 cm H20 by physical exam, or radiographic evidence of pulmonary congestion. Verification by a physician's statement in the medical record is required.

Severity of Congestive Heart Failure (CHF) Classifcation:

Classification takes into account only physicial disability due to symptoms of CHF.

Class 1:

Patients with cardiac disease but without resulting limitations of physical activity. Ordinary physical activity does not cause undue fatigue, palpitations, or dyspnea.

Class 2:

Patients with cardiac disease that results in slight limitation of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitations, or dyspnea. Ordinary physical activity includes walking more than 2 blocks on level ground, climbing more than 1 flight of stairs at normal pace, walking uphill, walking or climbing stairs rapidly, walking or stair climbing under adverse conditions (cold, wind, emotional stress).

Class 3:

Patients with cardiac disease that results in marked limitation of physical activity. They are comfortable at rest. Less than ordinary activity causes fatigue, palpitations, or dyspnea. Less than normal activity includes walking 1 to 2 blocks on level ground or climbing 1 flight of stairs at a normal pace.

Class 4:

Patients with cardiac disease that results in inability to carry out any physical activity without symptoms of fatigue, palpitations or dyspnea. Symptoms may be present even at rest. If any physical activity is undertaken, symptoms are increased.

DEFINITION OF REVASCULARIZATION PROCEDURES

Elective:

Patient is undergoing CABG on an elective basis. The patient is clinically stable, and his/her overall medical condition does not require revascularizatiuon within 7 days.

Urgent:

Patient is undergoing CABG on an urgent basis. The patient may be unstable, have disease that warrants revascularization within 7 days, or the patient is stable but has suffered a complication or event within the past 14 days that substantially increases the risk of revascularization (e.g., myocardial infarction).

Emergent:

Patient is undergoing CABG on an emergent basis. The patient is unstable clinically, and his/her condition requires immediate revascularization (revascularization must occur within 24 hours).

DEFINITION OF "SHED BLOOD"

Intraoperative salvaging of patients own blood volume through a packing and washing process. Exudate is removed and the pure RBC content is then reinfused into the patient.

OUTCOMES DURING THE 12 MONTHS FOLLOWING CABG SURGERY

HOSPITAL ID: _ _ 1-2

PATIENT ID: _ _ _ _ 3-6

SECTION A. PATIENT DEMOGRAPHICS

A-1) Name
Last: _____ 7-21

First: _____ 22-36

M.I.: ___ 37

A-2) SSN: _ _ _ / _ _ / _ _ _ _ 38-46

A-3) Birth Date (MM/DD/YY): _ _ / _ _ / _ _ 47-52

A-4) Sex (C'RCLE ONE)
Male 1
Female 2 53

SECTION B. MORTALITY

B-1) Died (CIRCLE ONE)
Yes 1
No 2
Don't know 8 54

IF B-1 IS YES, PLEASE ANSWER QUESTIONS B-2 THRU B-5; OTHERWISE SKIP TO SECTION C

B-2) Date of death (MM/DD/YY): _ _ / _ _ / _ _ 55-60

B-3) Location of death (CIRCLE ONE)
Home 1
Work 2
Recreation 3
Hospital 4
In transit to hospital 5
Other 6 61

(PLEASE SPECIFY) _____

_____ _ _ 62-63

B-4) Cardiac symptoms prior to death (CIRCLE ONE)
Stable 1
Worsening 2
Improving 3
Don't know 8 64

B-5) Cause of death (CIRCLE ONE)
Cardiac 1

(PLEASE SPECIFY) _____

_____

Vascular but non-cardiac 2 65

(PLEASE SPECIFY) _____

_____

Other 3

(PLEASE SPECIFY) _____

_____ _ _ 66-67

SECTION C. HOSPITAL ADMISSIONS DURING THE FIRST 12 MONTHS FOLLOWING CABG SURGERY

C-1) Patient admitted to the hospital during first 12 months following CABG surgery
Yes 1
No 2
Don't know 8 68

IF C-1 IS YES, PLEASE ANSWER QUESTIONS C-2 AND C-3; OTHERWISE SKIP TO SECTION D

C-2) Specify principal discharge diagnoses for each admission and the corresponding ICD9 codes

		ICD9 code (if available)	
Admission 1:	_____	_ _ _ _ _	69-73
	_____	_ _	74-75
Admission 2:	_____	_ _ _ _ _	76-80
	_____	_ _	81-82
Admission 3:	_____	_ _ _ _ _	83-87
		_ _	88-89

Admission 4: _____ _ _ _ _ _ 90-94

_____ _ _ 95-96

C-3) Cardiac procedures performed during the 12 months following CABG (CIRCLE ALL THAT APPLY)

Cardiac catheterization / coronary angiography	1	97
PTCA	1	98
CABG	1	99
Other	1	100

(PLEASE SPECIFY) _____

_____ _ _ 101-102

SECTION D. ANGINAL STATUS AND MEDICATIONS AT MONTHS AFTER CABG SURGERY

D-1) Twelve months following CABG surgery, patient is: (CIRCLE ONE)

Hospitalized	1	
Ambulatory	2	103
Don't know	8	

D-2) IF PATIENT IS AMBULATORY, record angina level during the preceding 2 weeks; IF PATIENT IS HOSPITALIZED, record angina level at the time of admission (See Glossary) (CIRCLE ONE)

No angina	1	
Stable angina		
Canadian CV Society Class 1	2	
2	3	
3	4	104
4	5	
Unstable angina	6	
Pain c/w acute MI	7	
Don't know	8	

D-3) Medications prescribed 12 months after CABG surgery (CIRCLE ALL THAT APPLY)

ACE Inhibitors	1	105
Antiarrhythmics	1	106
Anticoagulants	1	107
Aspirin	1	108
Beta Blockers	1	109
Calcium antagonists	1	110
Digitalis	1	111
Diuretics	1	112
Inotropic agents	1	113
Lipid-lowering agents	1	114
Long-acting nitrates	1	115
Persantine	1	116
Short acting nitrates	1	117
Vasodilators	1	118
Don't Know	1	119
Other	1	120

(PLEASE SPECIFY) _____

_____ _ _ 121-122

APPENDICES TO CHAPTER 8

TABLE A8-1

ORDINARY LEAST-SQUARES REGRESSION RESULTS OF APPROPRIATENESS SCORE USING DATA FROM ALL SEVEN SITES

		CLINICAL PRESENTATION			EXTENT OF DISEASE					
	Overall (N=3246)	Chr. Stable Angina (N=773)	Unstable Angina (N=1648)	AMI (N=819)	Left Main (N=762)	3-Vessel (N=1528)	2-Vessel with LAD (N=582)	2-Vessel without LAD (N=96)	1-Vessel with LAD (N=171)	1-Vessel without LAD (N=102)
INTERCEPT	8.79 ***	8.20 ***	8.93 ***	8.42 ***	8.96 ***	8.91 ***	8.73 ***	8.85 ***	8.52 ***	7.99 ***
HOSPITAL A	-.22 ***	.10	-.18 ***	.04	-.12 *	-.27 ***	-.18 *	-.69	-.15	-2.00 ***
HOSPITAL B	-.09 **	-.08	-.11 **	.11	-.08	-.06	-.01	-.45	-.01	-.87
HOSPITAL C	-.29 ***	.07	-.02	.06	.01	-.38 ***	-.12	-.80 *	-.50 **	-1.18 *
HOSPITAL E	-.23 ***	.14	-.16 **	-.03	-.06	-.33 ***	-.23	-.59	-.25	-.51
HOSPITAL F	-.83 ***	-.69 ***	-.11	.20	.06	-.55 ***	.07	.09	-1.11 ***	-3.34 ***
HOSPITAL G	-1.06 ***	-1.03 ***	.19	-.39 *	N/A	-.97 ***	-1.57 ***	N/A	-2.45 ***	N/A
TREND	-.002	.000	-.005 ***	.001	-.003 *	-.006 ***	-.005 *	.002	-.002	.001
R-Square	.062	.100	.016	.012	.019	.117	.038	.063	.217	.260
Pr>F	.0001	.0001	.0092	.1317	.0278	.0001	.0690	.3620	.0001	.0001

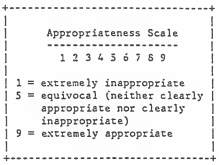
*** Indicates significance at the .01 level, ** at the .05 level, and * at .10.
The Pr>F statistic tests the joint significance of the Hospital dummy variables.

Source: Abstracts of clinical records among the seven demonstration hospitals, May 1991 through December 1993.
Appropriateness data are from a panel of experts.

APPENDIX 8-B

MATRIX OF APPROPRIATENESS SCORES BY CLINICAL INDICATION

KEY TO INTERPRETING FINAL APPROPRIATENESS RATINGS



	Rating of Appropriateness (Circle One)	Indication number
I. Chronic Stable Angina		
A. CABS is indicated despite the presence of strong contraindications	4 1 1 2 3 4 5 6 7 8 9 (1.0, 0.2,)	(1)
B. CABS is indicated in patients (without strong contraindications) with left main disease, and		
1. Ejection fraction 20% or greater	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	

The number of panelists assigning each rating; in this case, 7 panelists assigned a rating of 9 and one assigned a rating of 8.

The 1-9 rating scale

The median of the 9 panelists' ratings.

The mean absolute deviation from the median; a measure of dispersion.

"A" indicates that the panelists agreed, "D" indicates that they disagreed, and a blank indicates that they neither agreed nor disagreed; all according to our preferred definitions of agreement and disagreement given in the text.

Chapter 1 CHRONIC STABLE ANGINA	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
PATIENT HAS SEVERE ANGINA (CLASS III, IV)										
A. ON MAXIMAL MEDICAL THERAPY										
1. Left main disease										
a. Ejection fraction >50%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 2 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (4.5, 2.0, I)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 2 1 2 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 5 1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	(1- 9)
b. Ejection fraction 25-49%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 2 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (4.5, 2.0, I)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 2 1 2 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	2 1 5 1 1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	(10- 18)
c. Ejection fraction <25%	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	2 6 2 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.5, 2.0, I)	3 5 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	3 5 3 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	2 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.8, I)	2 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.1, I)	3 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	2 1 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	(19- 27)
2. Three vessel disease										
a. Ejection fraction >50%	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	2 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	4 4 1 2 3 4 5 6 7 8 9 (7.5, 0.5, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)	1 4 3 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	(28- 36)
b. Ejection fraction 25-49%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	4 1 3 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 4 3 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	(37- 45)
c. Ejection fraction <25%	3 5 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 1 6 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	4 4 1 2 3 4 5 6 7 8 9 (7.5, 0.5, A)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	3 5 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	2 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 2 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	(46- 54)
3. Two vessel disease with proximal left anterior descending involvement										
a. With e very positive exercise ECG	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	2 1 5 1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	4 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 3 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	5 2 1 1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	1 6 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	(55- 63)
a1. Ejection fraction >50%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.4, I)	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	3 5 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 4 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	4 3 1 1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	1 7 1 2 3 4 5 6 7 8 9 (4.5, 1.8, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.1, A)	(64- 72)
a2. Ejection fraction 25-49%	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.9, I)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	2 2 1 3 1 2 3 4 5 6 7 8 9 (5.5, 2.0, D)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	2 1 4 1 2 2 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	4 4 1 2 3 4 5 6 7 8 9 (3.0, 1.9, I)	1 2 3 4 5 6 7 8 9 (7.5, 0.5, A)	(73- 81)
a3. Ejection fraction <25%	3 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 5 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (5.5, 1.4, I)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 1 3 1 1 2 1 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 2 4 1 1 2 3 4 5 6 7 8 9 (3.5, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	(82- 90)
b. With a negative to minimally positive exercise ECG										
b1. Ejection fraction >50%	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (6.0, 1.2, I)	2 5 1 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 5 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	(91- 99)
b2. Ejection fraction 25-49%	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	3 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (6.0, 1.2, I)	2 5 1 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 5 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	
b3. Ejection fraction <25%	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 4 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	3 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 3 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 1 4 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, D)	1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.4, I)	1 2 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	(100-108)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1 CHRONIC STABLE ANGINA	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
4. Two vessel disease without proximal left anterior descending involvement										
a. With a very positive exercise ECG										
a1. Ejection fraction >50%	3 5 1 2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A) (5.5, 1.5, I) (8.0, 0.4, A)		5 3 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	7 1 2 1 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.1, A) (4.5, 1.2, I) (8.0, 0.2, A)		6 2 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	7 1 2 1 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 0.2, A) (3.0, 0.9, A)	3 5 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	(109-117)
a2. Ejection fraction 25-49%	2 6 1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A) (6.0, 1.4, I) (8.0, 0.5, A)		1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	6 2 1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A) (5.0, 1.2, I) (8.0, 0.4, A)		1 5 2 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	7 1 1 1 4 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 0.2, A) (3.0, 0.8, A)	4 4 1 2 3 4 5 6 7 8 9 (7.5, 0.5, A)	(118-126)
a3. Ejection fraction <25%	1 1 2 4 2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.5, 1.1, A) (5.0, 1.8, O) (8.0, 0.5, A)		1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	3 1 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A) (3.5, 1.4, I) (8.0, 0.5, A)		2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 1 4 1 3 2 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A) (2.0, 1.0, A)	1 3 4 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	(127-135)
b. With a negative to minimally positive exercise ECG										
b1. Ejection fraction >50%	1 1 4 2 2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A) (5.0, 1.2, I) (8.0, 0.5, A)		1 1 5 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 4 1 2 3 1 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A) (3.0, 0.9, I) (8.0, 0.5, A)		1 1 5 1 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 3 3 1 2 1 4 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 1.1, A) (3.0, 0.9, A)	1 3 4 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	(136-144)
b2. Ejection fraction 25-49%	1 1 3 3 1 1 4 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A) (5.0, 0.9, A) (8.0, 0.6, A)		1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 2 1 4 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A) (3.0, 0.9, A) (8.0, 0.6, A)		1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 3 3 1 2 1 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 1.0, A) (3.0, 0.9, A)	1 4 3 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(145-153)
b3. Ejection fraction <25%	1 1 1 4 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 1.1, I) (4.5, 1.8, I) (8.0, 0.8, A)		2 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	2 2 3 1 1 3 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I) (2.5, 1.1, I) (8.0, 0.6, A)		1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	2 2 1 2 1 3 2 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.5, 1.5, D) (2.0, 1.0, A)	1 1 3 3 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	(154-162)
5. Single vessel disease - proximal left anterior descending										
a. Ejection fraction >50%	2 3 3 1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A) (6.5, 1.9, O) (8.5, 0.5, A)		4 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	4 2 2 1 1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A) (4.5, 1.9, O) (9.0, 0.5, A)		1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	4 3 1 3 2 1 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 0.6, A) (2.0, 1.1, I)	1 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	(163-171)
b. Ejection fraction 25-49%	1 4 3 1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A) (6.5, 1.9, O) (8.0, 0.4, A)		5 3 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	3 3 2 1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A) (4.5, 1.9, O) (8.5, 0.6, A)		1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	3 4 1 3 2 1 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A) (2.0, 1.2, I)	1 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	(172-180)
c. Ejection fraction <25%	1 1 4 2 1 2 2 1 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A) (5.0, 1.9, O) (8.0, 0.2, A)		6 2 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	1 4 1 2 1 2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A) (3.5, 1.4, I) (8.0, 0.5, A)		1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 4 1 1 4 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.0, 1.1, I) (1.5, 0.9, A)	1 1 5 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(181-189)
6. Single vessel disease - any vessel other than PLAD										
a. Ejection fraction >50%	1 2 4 1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A) (3.0, 1.2, I) (8.0, 0.4, A)		5 3 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 1 3 2 1 3 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A) (2.5, 1.0, A) (8.5, 0.6, A)		1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, I)	4 2 2 1 2 3 4 5 6 7 8 9 (1.5, 0.8, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	(190-198)
b. Ejection fraction 25-49%	1 2 4 1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A) (3.0, 1.2, I) (8.0, 0.4, A)		5 3 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	2 3 2 1 3 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A) (2.5, 1.0, A) (8.5, 0.6, A)		1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, I)	4 2 2 1 2 3 4 5 6 7 8 9 (1.5, 0.8, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	(199-207)
c. Ejection fraction <25%	1 1 1 4 1 4 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 1.2, A) (1.5, 1.4, A) (8.0, 0.2, A)		6 2 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	3 1 2 1 4 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 1.5, A) (1.5, 0.8, A) (8.0, 0.5, A)		1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	6 2 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	(208-216)

Appropriateness scale: 1 - extremely inappropriate, 5 - equivocal, 9 - extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
B. ON LESS THAN MAXIMAL MEDICAL THERAPY										
1. Left main disease										
a. Ejection fraction >50%	26 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	26 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	2611 111 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	26 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1115 1 2 3 4 5 6 7 8 9 (9.0, 0.8, A)	1211 111 1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	1222 1 2 3 4 5 6 7 8 9 (8.0, 0.9, I)	1 2121 1 2 3 4 5 6 7 8 9 (7.0, 1.3, I)	2121 2 1 2 3 4 5 6 7 8 9 (4.0, 1.5, D)	(217-225)
b. Ejection fraction 25-49%	26 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	26 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	2611 111 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	26 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1115 1 2 3 4 5 6 7 8 9 (9.0, 0.8, A)	1211 111 1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	1222 1 2 3 4 5 6 7 8 9 (8.0, 0.9, I)	11112 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	22 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.8, D)	(226-234)
c. Ejection fraction <25%	1 25 1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 25 1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	2111 111 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	1115 1 2 3 4 5 6 7 8 9 (9.0, 0.8, A)	2114 1 2 3 4 5 6 7 8 9 (8.5, 1.1, I)	1211 111 1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	2112 1 1 2 3 4 5 6 7 8 9 (7.0, 1.9, I)	2 1111 1 2 3 4 5 6 7 8 9 (6.0, 2.1, I)	31 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.9, D)	(235-243)
2. Three vessel disease										
a. Ejection fraction >50%	233 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 43 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 115 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1331 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	134 1 2 3 4 5 6 7 8 9 (6.5, 0.6, A)	1 1132 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	11411 1 2 3 4 5 6 7 8 9 (6.0, 0.8, A)	1213 1 1 2 3 4 5 6 7 8 9 (4.5, 1.2, A)	2 51 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(244-252)
b. Ejection fraction 25-49%	143 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 331 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 25 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1223 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1222 1 2 3 4 5 6 7 8 9 (6.5, 0.9, A)	1 1123 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 322 1 2 3 4 5 6 7 8 9 (6.5, 1.0, A)	232 1 1 2 3 4 5 6 7 8 9 (4.0, 0.9, A)	2 51 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(253-261)
c. Ejection fraction <25%	1232 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	21 5 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	11 15 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	152 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	2231 1 2 3 4 5 6 7 8 9 (6.5, 0.9, A)	1 1132 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	11 22 2 1 2 3 4 5 6 7 8 9 (5.5, 1.6, D)	11122 11 1 2 3 4 5 6 7 8 9 (3.5, 1.5, I)	2321 1 2 3 4 5 6 7 8 9 (6.0, 0.8, A)	(262-270)
3. Two vessel disease with proximal left anterior descending involvement										
a. With a very positive exercise ECG	1 43 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 313 1 2 3 4 5 6 7 8 9 (6.5, 1.4, A)	152 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1232 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 3211 1 2 3 4 5 6 7 8 9 (5.5, 1.2, A)	431 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	12311 1 2 3 4 5 6 7 8 9 (6.0, 0.9, A)	12 41 1 2 3 4 5 6 7 8 9 (4.0, 1.0, A)	1 331 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	(271-279)
a1. Ejection fraction >50%	143 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1141 1 2 3 4 5 6 7 8 9 (8.0, 1.2, A)	71 1 2 3 4 5 6 7 8 9 (8.0, 0.1, A)	323 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1222 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	521 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	1421 1 2 3 4 5 6 7 8 9 (6.0, 0.6, A)	11 321 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	1421 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(280-288)
a2. Ejection fraction 25-49%	1 1141 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	11 114 1 2 3 4 5 6 7 8 9 (7.5, 1.9, D)	1 61 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1321 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	2 1122 1 2 3 4 5 6 7 8 9 (6.5, 1.9, D)	1421 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 123 1 1 2 3 4 5 6 7 8 9 (5.5, 1.2, A)	22 211 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	2321 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	(289-297)
a3. Ejection fraction <25%										
b. With a negative to minimally positive exercise ECG	21122 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	2 11211 1 2 3 4 5 6 7 8 9 (5.5, 1.8, D)	1 1321 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	11 22 2 1 2 3 4 5 6 7 8 9 (7.0, 1.9, I)	1111113 1 2 3 4 5 6 7 8 9 (4.5, 1.6, I)	1 2131 1 2 3 4 5 6 7 8 9 (7.5, 1.4, A)	1112 1111 1 2 3 4 5 6 7 8 9 (4.0, 2.1, D)	31211 1 2 3 4 5 6 7 8 9 (2.5, 1.2, I)	2 2121 1 2 3 4 5 6 7 8 9 (6.5, 1.8, D)	(298-306)
b1. Ejection fraction >50%	2312 1 2 3 4 5 6 7 8 9 (7.0, 0.9, I)	1 32 2 1 2 3 4 5 6 7 8 9 (5.5, 1.4, I)	1231 1 2 3 4 5 6 7 8 9 (7.5, 1.2, A)	12212 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	11212 1 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	1 2221 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	12 2111 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	31211 1 2 3 4 5 6 7 8 9 (2.5, 1.4, I)	2 231 1 2 3 4 5 6 7 8 9 (6.5, 1.5, D)	(307-315)
b2. Ejection fraction 25-49%	1 11221 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	12 212 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	111 2311 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	2211 21 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	111111 1 2 3 4 5 6 7 8 9 (4.5, 2.2, D)	1 1123111 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	11121 2 1 1 2 3 4 5 6 7 8 9 (3.5, 1.9, I)	32 21 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	11122 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	(316-324)
b3. Ejection fraction <25%										

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
4. Two vessel disease without proximal left anterior descending involvement										
a. With a very positive exercise ECG										
a1. Ejection fraction >50%	3 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.1, 1)	1 1 4 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, 1)	2 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 2 2 1 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	1 3 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.0, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, D)	2 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.3, 1)	(325-333)
a2. Ejection fraction 25-49%	2 2 1 3 1 4 3 2 1 4 1 1 2 3 4 5 6 7 8 9 (7.5, 1.1, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 3 2 1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	2 1 1 1 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, 0)	2 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.3, 1)	1 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	(334-342)
a3. Ejection fraction <25%	1 1 1 2 2 1 1 1 2 1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (5.5, 2.0, D)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	2 1 3 1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.3, 1)	2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	2 2 2 1 2 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, 1)	3 1 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, 1)	3 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.1, 1)	(343-351)
b. With a negative to minimally positive exercise ECG										
b1. Ejection fraction >50%	1 1 2 1 1 2 2 1 1 2 1 1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (4.5, 1.6, D)	1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 1)	2 2 1 2 1 2 2 1 1 2 2 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 0)	1 2 3 4 5 6 7 8 9 (3.5, 1.4, 1)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, D)	2 1 1 1 1 1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.2, 0)	(352-360)
b2. Ejection fraction 25-49%	1 1 1 1 1 1 1 2 2 1 1 1 2 1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (4.5, 2.1, 0)	1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 1)	2 1 1 1 2 1 2 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.9, 0)	1 2 3 4 5 6 7 8 9 (3.5, 1.5, 1)	1 1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	1 1 2 1 1 1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (3.5, 2.0, D)	2 2 3 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	2 2 3 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, 0)	(361-369)
b3. Ejection fraction <25%	1 2 1 1 2 1 1 1 1 1 2 2 1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.2, 1)	1 2 3 4 5 6 7 8 9 (4.5, 2.0, 0)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, 1)	1 1 1 1 1 2 1 1 1 3 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 2.0, 0)	1 2 3 4 5 6 7 8 9 (3.0, 1.4, 1)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, 0)	2 2 1 2 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (2.5, 2.1, 1)	2 1 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 0)	(370-378)
5. Single vessel disease - proximal left anterior descending										
a. Ejection fraction >50%	1 3 3 1 1 1 2 3 1 1 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.5, 1)	4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	1 4 2 1 2 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.0, 1)	5 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 3 1 2 1 3 1 2 2 1 2 3 4 5 6 7 8 9 (4.5, 1.6, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	(379-387)
b. Ejection fraction 25-49%	1 2 4 1 1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.5, 0)	4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	1 1 3 3 1 1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 2 3 4 5 6 7 8 9 (4.5, 1.5, 1)	5 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	3 1 1 1 1 3 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.8, 1)	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.2, 1)	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.2, 1)	(388-396)
c. Ejection fraction <25%	2 1 2 2 1 3 1 1 2 1 1 5 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.9, 0)	1 2 3 4 5 6 7 8 9 (4.0, 2.2, 1)	1 5 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	2 1 2 2 1 3 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 2.0, 0)	1 2 3 4 5 6 7 8 9 (3.0, 1.6, 1)	1 6 1 1 2 3 4 5 6 7 8 9 (7.0, 0.4, A)	1 1 1 3 1 1 4 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.5, 1.4, 1)	(397-405)
6. Single vessel disease - any vessel other than PLAD										
a. Ejection fraction >50%	1 1 3 1 1 1 3 1 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, 1)	1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, 1)	1 1 2 1 1 1 3 2 2 1 1 2 3 4 5 6 7 8 9 (4.5, 1.9, D)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	2 2 1 1 1 1 5 2 1 1 2 3 4 5 6 7 8 9 (2.5, 2.0, 1)	1 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	1 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.2, 0)	(406-414)
b. Ejection fraction 25-69%	1 1 1 3 1 1 3 1 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 1 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, 1)	1 1 3 1 1 1 3 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.8, D)	2 2 1 1 1 1 5 2 1 1 2 3 4 5 6 7 8 9 (2.5, 2.0, 1)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	(415-423)
c. Ejection fraction <25%	2 1 2 1 1 1 4 1 2 1 1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, 0)	1 2 3 4 5 6 7 8 9 (1.5, 1.6, 1)	1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, 1)	2 1 3 1 1 1 4 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, 0)	1 2 3 4 5 6 7 8 9 (1.5, 1.0, A)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, D)	3 2 1 1 1 1 5 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.9, 1)	1 1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	1 1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 0)	(424-432)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
PATIENT HAS MILD OR MODERATE ANGINA (CLASS I, II)										
A. ON MAXIMAL MEDICAL THERAPY										
1. Left main disease		2 6	2 6 2 1 1 1 1 1		3 5	4 6 1 2 1 1 1 1 1		1 4 1 2	1 1 1 4 1 1 3 1 1 1 1	
a. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 2 3 4 5 6 7 8 9 (3.5, 2.0, 1)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (3.0, 1.9, 1)	(433-441)
	1 1 7	1 1 7	2 1 1 1 1 1 1		2 6	3 5 1 2 1 1 1 1 1		1 2 3 2	1 1 1 2 2 1 1 3 1 1 1 1	
b. Ejection fraction 25-49%	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (3.5, 2.0, 1)	1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (3.0, 1.9, 1)	(442-450)
	1 1 6	1 1 6	2 1 1 1 1 1 1	1 3 4	1 4 3	2 1 1 1 1 1 1	1 1 2 1 2	1 1 1 2 2 1 1 3 1 1 1 1		
c. Ejection fraction <25%	1 2 3 4 5 6 7 8 9 (9.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (3.5, 2.0, 1)	1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	1 2 3 4 5 6 7 8 9 (3.5, 2.0, 1)	1 2 3 4 5 6 7 8 9 (7.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (6.0, 1.8, 0)	1 2 3 4 5 6 7 8 9 (3.0, 1.9, 1)	(451-459)
2. Three vessel disease	1 1 5 1	4 2 1 1	1 2 3 2	2 1 1 4	4 1 1 2	1 1 1 2 3 1	1 2 3 1 1	1 1 3 2 1	1 2 2 1 1	
a. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.1, 1)	1 2 3 4 5 6 7 8 9 (5.5, 1.1, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.4, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, 1)	1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.6, 1)	(460-468)
	4 4	1 3 3 1	1 2 3 2	2 5 1	2 2 4	1 1 2 3 1	4 1 2 1 1	1 2 1 4	1 1 2 2 1 1	
b. Ejection fraction 25-49%	1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.0, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (3.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	(469-477)
	1 1 1 3 2	1 2 2 2 1	1 1 1 3 2	1 1 1 3 1	1 1 3 1 3	1 1 1 1 3 1	1 1 1 3 2 1	2 1 2 2 1	1 1 2 2 1	
c. Ejection fraction <25%	1 2 3 4 5 6 7 8 9 (8.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (7.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	1 2 3 4 5 6 7 8 9 (2.5, 1.6, 2)	1 2 3 4 5 6 7 8 9 (6.5, 1.6, 1)	(478-486)
3. Two vessel disease with proximal left anterior descending involvement										
a. With a very positive exercise ECG		2 1 2 3	1 1 3 1 2	1 4 3	2 1 4 1	1 3 2 1 1	1 6 1	1 4 1 1	1 2 2 1 1	1 5 1 1
a1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (6.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(487-495)
	4 4	1 2 2 3	2 3 3	7 1	1 1 2 2 2	2 5 1	2 3 2	1 1 1 1 3	1 5 1 1	
a2. Ejection fraction 25-49%	1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.4, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (6.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.3, 1)	1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(496-504)
	1 1 1 2 3 1 1	2 1 1 2	2 1 2 3	1 1 2 3 1 1	1 2 1 1 1	2 1 4 1	1 1 1 3 1	2 2 1 1	1 2 3 1 1	
a3. Ejection fraction <25%	1 2 3 4 5 6 7 8 9 (8.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (5.5, 2.0, 0)	1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.5, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.8, 0)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.6, D)	1 2 3 4 5 6 7 8 9 (2.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	(505-513)
b. With a negative to minimally positive exercise ECG	1 2 1 4	1 2 1 2 1 1	1 1 1 3 1 1	1 2 1 2 2	3 1 2 1 1	1 2 1 2 1 1	1 3 3 1 1	1 2 2 1 1	1 2 1 1 2 1	
b1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (7.5, 1.4, 1)	1 2 3 4 5 6 7 8 9 (5.5, 1.8, D)	1 2 3 4 5 6 7 8 9 (8.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.2, 1)	1 2 3 4 5 6 7 8 9 (4.5, 1.8, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.5, 1)	(514-522)
	1 2 1 4	1 1 1 3 1 1	1 1 1 3 1 1	2 2 2 2	1 1 1 3 1 1	1 2 3 1 1	1 2 3 1 1	1 1 1 1 3 1		
b2. Ejection fraction 25-49%	1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.0, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, A)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.4, 1)	(523-531)
	1 2 1 3	1 1 3 1 1 1	1 2 1 2 1 1	1 3 1 1 2	1 1 3 1 1	1 2 1 2 1 1	1 2 2 1 1	1 3 2 2 1	1 1 2 2 1	
b3. Ejection fraction <25%	1 2 3 4 5 6 7 8 9 (6.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.6, 0)	1 2 3 4 5 6 7 8 9 (6.5, 1.8, 1)	1 2 3 4 5 6 7 8 9 (5.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.4, 1)	(532-540)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK		
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
4. Two vessel disease without proximal left anterior descending involvement										
a. With a very positive exercise ECG	3 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	1 1 4 2 1 2 3 4 5 6 7 8 9 (5.0, 0.9, 1)	2 3 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	1 3 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 1.2, 1)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.1, 1)	2 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, 1)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.0, 1)	3 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	(541-549)
a1. Ejection fraction >50%										
a2. Ejection fraction 25-49%	1 1 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (5.5, 1.4, 1)	1 1 3 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, 1)	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, D)	3 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	1 4 2 1 1 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 0.9, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	6 1 2 1 1 2 3 4 5 6 7 8 9 (6.5, 1.0, A)	(550-558)
a3. Ejection fraction <25%	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.6, 1)	1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (4.5, 1.5, 1)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, 1)	1 1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.6, 1)	2 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.3, 1)	1 1 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	2 1 1 3 1 3 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.9, D)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, 1)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, 1)	(559-567)
b. With a negative to minimally positive exercise ECG	1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 2.0, D)	1 1 3 3 1 2 3 4 5 6 7 8 9 (3.0, 1.1, 1)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, 1)	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, 1)	1 2 1 2 1 1 3 1 3 1 1 2 3 4 5 6 7 8 9 (3.5, 1.8, 1)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.0, A)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.4, 1)	(568-576)
b1. Ejection fraction >50%	1 1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.5, 2.0, D)	1 1 3 4 1 2 3 4 5 6 7 8 9 (3.0, 1.1, 1)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, 1)	1 1 3 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, D)	1 4 2 1 1 2 3 4 5 6 7 8 9 (3.0, 0.6, A)	1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	1 2 1 1 1 1 2 2 3 1 1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 0.9, A)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.6, 1)	(577-585)
b2. Ejection fraction 25-49%	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.4, 1)	1 3 4 1 2 3 4 5 6 7 8 9 (4.0, 1.1, A)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.4, 1)	1 1 3 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1)	1 4 2 1 1 2 3 4 5 6 7 8 9 (3.0, 0.6, A)	2 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	1 2 1 1 1 1 2 2 3 1 1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 0.9, A)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.6, 1)	(577-585)
b3. Ejection fraction <25%	1 2 1 1 2 1 1 2 1 3 1 2 3 4 5 6 7 8 9 (5.5, 1.9, I)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (3.5, 1.2, 1)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.8, 1)	1 1 2 1 1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.1, D)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.0, 1)	1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	2 2 1 1 1 1 3 2 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, 1)	1 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	(586-594)
5. Single vessel disease - proximal left anterior descending										
a. With a very positive exercise ECG	1 5 2 1 1 2 1 3 2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 1 2 3 4 5 6 7 8 9 (4.0, 2.1, D)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 2 1 1 2 1 1 2 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	4 1 3 1 2 3 4 5 6 7 8 9 (3.5, 1.8, D)	1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 1 1 2 2 1 2 1 3 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	2 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.0, 1)	2 2 2 1 1 2 3 4 5 6 7 8 9 (7.5, 1.0, 1)	(595-603)
a1. Ejection fraction >50%										
a2. Ejection fraction 25-49%	1 4 3 1 1 2 1 2 1 2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (4.0, 2.2, D)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	3 2 3 1 1 2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (3.5, 1.9, D)	2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 2 3 1 1 2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, 1)	2 2 3 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, 1)	2 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	(604-612)
a3. Ejection fraction <25%	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.4, 1)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.8, D)	1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.6, 1)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.5, 1)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 1 1 4 1 3 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, 1)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, A)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	(613-621)
b. With a negative to minimally positive exercise ECG	1 1 1 1 3 1 2 3 4 5 6 7 8 9 (6.5, 2.0, D)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.8, 1)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	2 2 2 2 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 2.5, D)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (3.5, 1.4, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, 1)	2 1 3 1 1 3 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, 1)	2 1 4 1 1 2 3 4 5 6 7 8 9 (2.0, 0.5, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, D)	(622-630)
b1. Ejection fraction >50%	1 1 1 1 3 1 2 3 4 5 6 7 8 9 (6.5, 2.0, D)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.8, 1)	1 1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	2 1 2 2 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.0, 2.4, D)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (3.5, 1.4, 1)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.6, 1)	2 1 3 1 1 3 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, 1)	2 1 4 1 1 2 3 4 5 6 7 8 9 (2.0, 0.5, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, D)	(631-639)
b2. Ejection fraction 25-49%	2 1 1 1 3 1 2 3 4 5 6 7 8 9 (5.5, 2.4, D)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, 1)	1 2 1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.5, 1.8, 1)	2 1 2 1 2 1 1 3 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (3.5, 1.2, 1)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, 1)	2 1 1 1 1 2 3 4 1 1 2 3 4 5 6 7 8 9 (3.5, 1.8, 1)	2 3 4 1 1 2 3 4 5 6 7 8 9 (2.0, 0.5, A)	2 2 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.8, D)	(640-648)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
6. Single vessel disease - any vessel other than PLAD										
a. With a very positive exercise ECG	1 1 1 2 2 1 4 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I) (2.5, 0.6, A) (8.0, 0.5, A)		3 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 1 1 3 1 1 1 6 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I) (2.0, 0.2, A) (8.0, 0.5, A)		3 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	2 1 2 2 1 3 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.0, I) (2.0, 0.4, A) (7.0, 0.6, A)		1 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(649-657)
a1. Ejection fraction >50%										
a2. Ejection fraction 25-49%	1 2 2 2 1 4 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A) (2.5, 0.6, A) (7.5, 0.6, A)		4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	1 2 3 1 1 1 6 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A) (2.0, 0.2, A) (7.5, 0.8, A)		1 3 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	2 1 1 1 2 1 3 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.5, 2.1, I) (2.0, 0.4, A) (7.0, 0.6, A)		2 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(658-666)
a3. Ejection fraction <25%	2 1 1 3 1 2 2 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 2.4, D) (2.5, 1.0, A) (8.0, 0.9, A)		1 1 1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	2 1 2 2 1 2 5 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 2.4, D) (2.0, 0.5, A) (8.0, 0.9, A)		1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	2 1 1 3 1 4 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.5, 2.5, I) (1.5, 0.6, A)		1 1 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	(667-675)
b. With a negative to minimally positive exercise ECG										
b1. Ejection fraction >50%	2 1 2 1 2 3 3 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.0, D) (2.0, 0.6, A) (6.5, 1.8, D)		2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.8, D)	2 1 2 1 1 1 4 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.0, D) (2.0, 0.4, A) (7.0, 1.5, I)		1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	3 2 1 1 1 4 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 1.9, I) (1.5, 0.5, A) (5.5, 2.1, D)		1 2 1 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 2.1, D)	(676-684)
b2. Ejection fraction 25-49%	2 1 2 1 2 4 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.0, D) (1.5, 0.8, A) (6.5, 1.9, D)		2 1 2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.9, D)	2 1 2 1 1 1 4 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.0, D) (1.5, 0.5, A) (6.0, 1.9, I)		1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	4 1 1 1 1 5 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.5, 1.9, I) (1.0, 0.4, A)		1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	(685-693)
b3. Ejection fraction <25%	2 3 1 2 4 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (3.0, 2.0, D) (1.5, 0.8, A) (6.0, 2.0, D)		2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	2 1 2 1 1 1 4 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (3.0, 2.0, D) (1.5, 0.5, A) (6.0, 1.9, I)		1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	5 1 2 6 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 1.6, I) (1.0, 0.2, A)		1 2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.0, D)	(694-702)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
B. PATIENT IS ON LESS THAN MAXIMAL MEDICAL THERAPY										
1. Left main disease										
a. Ejection fraction >50%	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 1 6 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.9, D)	4 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	2 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	1 4 3 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.5, I)	1 3 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, D)	(703-711)
b. Ejection fraction 25-49%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.9, D)	3 5 1 2 3 4 5 6 7 8 9 (8.5, 0.4, A)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	2 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	1 3 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.8, D)	(712-720)
c. Ejection fraction <25%	1 1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.1, A)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 1.2, A)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.9, D)	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 1.4, I)	2 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.9, D)	2 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.3, I)	1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.8, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (5.5, 1.9, D)	2 1 3 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.8, D)	(721-729)
2. Three vessel disease	2 1 2 3	3 3 2	1 2 1 3 1	3 2 1 2	1 6 1	1 1 2 1 2	2 1 1 3 1	2 1 2 3	1 2 2 2 1	
a. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (6.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (5.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.3, I)	1 2 3 4 5 6 7 8 9 (5.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (4.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (6.0, 1.1, A)	(730-738)
b. Ejection fraction 25-49%	1 1 6 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	I 2 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	2 3 3 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.1, A)	1 2 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	2 1 1 2 2 I 1 2 3 4 5 6 7 8 9 (5.5, 1.5, D)	2 2 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 5 1 1 1 2 3 4 5 6 7 8 9 (6.0, 0.8, A)	(739-747)
c. Ejection fraction <25%	1 1 5 1 1 2 3 4 5 6 7 8 9 (8.0, 1.2, I)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	1 1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 1 3 3 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	1 1 1 1 3 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 1 1 1 2 1 2 2 1 2 3 4 5 6 7 8 9 (5.5, 2.1, D)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, A)	(748-756)
3. Two vessel disease with proximal left anterior descending involvement										
a. With a very positive exercise ECG	2 2 3 1 1 4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 3 3 1 2 3 4 5 6 7 8 9 (6.0, 1.0, A)	4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.7, I)	2 2 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.1, A)	2 1 1 2 1 1 3 1 2 3 4 5 6 7 8 9 (3.5, 1.2, I)	2 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	(757-765)
a1. Ejection fraction >50%	1 6 1 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	1 3 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 3 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 1 1 3 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.6, D)	1 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.6, I)	2 1 3 1 1 2 1 1 3 1 2 3 4 5 6 7 8 9 (6.0, 1.1, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.4, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.5, I)	(766-774)
a2. Ejection fraction 25-49%	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	2 1 1 3 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, I)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.D, I)	1 1 1 4 1 2 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.8, I)	1 2 1 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.5, I)	2 3 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, I)	(775-783)
a3. Ejection fraction <25%										
b. With a negative to minimally positive exercise ECG	2 2 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.5, I)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.2, A)	3 1 2 2 1 2 3 4 5 6 7 8 9 (5.5, 1.4, I)	1 4 1 2 1 2 3 4 5 6 7 8 9 (3.0, 0.8, A)	1 1 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.7, I)	1 2 2 1 1 1 3 1 2 3 4 5 6 7 8 9 (3.0, 1.8, I)	3 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 2.0, D)	(784-792)
b1. Ejection fraction >50%	1 2 1 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (5.0, 1.5, D)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.2, A)	2 2 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.5, I)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.0, A)	2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	1 1 2 2 1 3 2 3 1 2 3 4 5 6 7 8 9 (3.5, 1.6, I)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, D)	(793-801)
b2. Ejection fraction 25-49%	2 1 1 3 1 2 3 4 5 6 7 8 9 (5.5, 2.0, I)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (4.5, 1.6, D)	1 1 1 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	1 4 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	2 1 2 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	1 2 3 1 1 3 4 I 1 2 3 4 5 6 7 8 9 (3.0, 1.5, I)	2 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.5, A)	1 2 1 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	(802-810)
b3. Ejection fraction <25%										

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
4. Two vessel disease without proximal left anterior descending involvement										
a. With a very positive exercise ECG	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.7, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.1, I)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (3.5, 1.2, I)	2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 0.6, I)	1 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, D)	1 1 3 2 2 1 2 3 4 5 6 7 8 9 (2.5, 0.9, A)	1 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 0.7, I)	(811-819)
a1. Ejection fraction >50%										
a2. Ejection fraction 25-49%	2 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	2 3 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, I)	2 3 2 1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 0.7, I)	1 1 2 1 2 1 1 3 1 3 1 2 3 4 5 6 7 8 9 (5.5, 1.8, D)	1 2 3 4 5 6 7 8 9 (2.5, 1.0, A)	2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, I)	(820-828)
a3. Ejection fraction <25%	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	2 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 2 3 1 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	2 1 1 1 2 2 1 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.9, D)	1 2 3 4 5 6 7 8 9 (3.5, 1.4, I)	1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, I)	3 2 2 1 1 4 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	3 2 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.3, I)	(829-837)
b. With a negative to minimally positive exercise ECG										
b1. Ejection fraction >50%	1 1 3 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.9, D)	2 1 1 3 1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, I)	2 1 2 1 2 1 2 3 4 5 6 7 8 9 (4.0, 2.0, D)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.1, I)	1 1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.8, D)	3 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 2.1, D)	4 1 2 1 1 2 3 4 5 6 7 8 9 (1.5, 1.0, A)	3 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.1, D)	(838-846)
b2. Ejection fraction 25-49%	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	1 2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, I)	2 2 1 1 2 2 1 2 3 4 5 6 7 8 9 (4.0, 2.4, D)	2 3 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, D)	3 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 2.0, D)	3 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.0, D)	(847-855)
b3. Ejection fraction <25%	1 1 1 3 2 2 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 2.1, I)	2 1 1 1 1 2 2 3 1 2 1 2 3 4 5 6 7 8 9 (4.5, 2.4, D)	2 3 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	1 2 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, D)	4 2 1 1 4 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 2.1, D)	1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.9, D)	(856-864)
5. Single vessel disease - proximal left anterior descending										
a. With a very positive exercise ECG	1 1 5 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	3 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.9, D)	1 6 1 1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	1 3 3 1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 2 3 4 5 6 7 8 9 (4.5, 1.8, D)	3 3 1 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, I)	1 1 4 1 1 2 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	2 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	(865-873)
a1. Ejection fraction >50%										
a2. Ejection fraction 25-49%	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	3 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	1 1 5 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 2 2 2 1 1 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 2 3 4 5 6 7 8 9 (4.5, 1.9, D)	1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.7, I)	1 2 1 1 2 1 2 1 2 2 1 2 3 4 5 6 7 8 9 (5.5, 1.9, I)	1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	3 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	(874-882)
a3. Ejection fraction <25%	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.8, I)	4 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.6, I)	1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	1 2 2 1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (7.0, 2.0, I)	1 2 3 4 5 6 7 8 9 (3.0, 1.8, I)	1 1 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	2 1 1 1 2 1 3 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.5, D)	1 2 3 4 5 6 7 8 9 (2.0, 1.2, I)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (6.5, 1.1, A)	(883-891)
b. With a negative to minimally positive exercise ECG										
b1. Ejection fraction >50%	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	1 3 3 1 2 3 4 5 6 7 8 9 (2.0, 1.4, I)	1 3 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.4, I)	1 2 2 1 2 1 1 2 3 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.1, A)	1 1 1 2 1 1 1 3 2 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, D)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	(892-900)
b2. Ejection fraction 25-49%	1 1 1 3 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, D)	1 3 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.7, I)	2 1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	1 1 1 2 1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	1 1 3 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.3, I)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.1, A)	1 1 1 3 2 3 2 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.5, D)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	(901-909)
b3. Ejection fraction <25%	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	2 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.3, I)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 2.4, D)	1 1 2 1 1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.6, I)	1 2 2 1 1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.9, I)	3 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, I)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, I)	(910-918)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 1

CHRONIC STABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
6. Single vessel disease - any vessel other than PLAD										
a. With a very positive exercise ECG										
a1. Ejection fraction >50%	1 1 1 1 3 1 3 1 3 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 2.1, D)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.5, 1.0, A)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.6, I)	1 1 1 1 1 2 1 3 2 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.5, 2.4, D)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.D, D.8, A)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.6, I)	3 1 1 2 1 5 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.5, 2.4, I)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.D, 0.5, A)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	(919-927)
a2. Ejection fraction 25-49%	1 2 1 3 1 3 1 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 2.2, I)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.5, 0.9, A)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.8, I)	1 1 2 1 2 1 3 3 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.0, 2.5, D)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 0.6, A)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.8, I)	3 2 2 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 2.2, I)	1 1 3 3 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	1 1 3 3 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.0, 1.5, I)	(928-936)
a3. Ejection fraction <25%	2 1 2 2 1 4 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.2, D)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.5, 0.8, A)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.9, I)	1 2 1 1 1 1 1 3 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (3.5, 2.4, D)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	1 2 2 1 2 2 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.9, I)	5 1 1 1 6 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 1.8, I)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	(937-945)
b. With a negative to minimally positive exercise ECG										
b1. Ejection fraction >50%	3 1 1 1 2 5 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.5, 2.4, D)	5 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.0, 2.4, D)	4 1 1 2 5 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 2.4, D)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.0, 2.6, D)	4 1 1 1 1 6 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.5, 1.9, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.5, 2.5, D)	(946-954)
b2. Ejection fraction 25-49%	3 2 1 2 5 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 2.1, D)	5 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	2 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.5, 2.4, D)	4 1 1 2 5 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.5, 2.1, D)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.5, A)	2 1 2 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.0, 2.4, D)	4 2 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.5, 1.6, I)	6 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.4, D)	(955-963)
b3. Ejection fraction <25%	3 3 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.0, 1.9, D)	6 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.2, D)	4 2 2 6 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.5, 2.0, D)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.4, D)	5 1 2 6 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 1.4, I)	6 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	2 2 1 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	(964-972)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 2

UNSTABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
PERSISTENT SYMPTOMS ON MEDICAL THERAPY										
A. LEFT MAIN DISEASE	8	1 7	1 1 1 1 2 2	1 7	2 6	1 1 1 1 2 2	5 3	1 2 3 2	1 2 2 2 1	
1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (6.5, 2.1, O)	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 2 3 4 5 6 7 8 9 (6.5, 2.0, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	(1- 9)
2. Ejection fraction 25-49%	8 1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 2.1, O)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 1 6 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 2.0, I)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(10- 18)
3. Ejection fraction <25%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.8, A)	1 1 6 1 2 3 4 5 6 7 8 9 (9.0, 0.9, A)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 2.1, O)	1 1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.2, I)	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 1.4, I)	1 1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 2.0, I)	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.6, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.6, I)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.8, O)	(19- 27)
B. THREE VESSEL DISEASE	1 6	1 1 2 4	2 1 5	3 5	1 2 2 3	1 3 4	4 1 3	1 3 1 1 1 1	3 4 1	
1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.1, I)	1 2 3 4 5 6 7 8 9 (8.5, 1.6, I)	1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.4, A)	1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(28- 36)
2. Ejection fraction 25-49%	1 6 1 2 3 4 5 6 7 8 9 (9.0, 0.1, I)	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.8, I)	2 1 5 1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.1, A)	1 3 4 1 2 3 4 5 6 7 8 9 (8.0, 1.4, A)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	3 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(37- 45)
3. Ejection fraction <25%	1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.4, I)	1 1 1 1 3 1 2 3 4 5 6 7 8 9 (7.5, 2.2, I)	2 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.4, I)	1 1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.6, I)	1 1 1 1 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.8, I)	1 2 4 1 2 3 4 5 6 7 8 9 (9.0, 1.0, I)	1 1 1 4 1 2 3 4 5 6 7 8 9 (9.0, 1.6, I)	1 1 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.1, O)	3 2 2 1 2 3 4 5 6 7 8 9 (8.0, 0.7, I)	(46- 54)
C. TWO VESSEL DISEASE WITH PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT	2 6	1 2 4 1	4 4	4 4	1 1 2 3 1	2 3 3	3 3 1 1	1 1 1 4 1	1 1 3 3	
1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	(55- 63)
2. Ejection fraction 25-49%	3 5 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 1 4 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	6 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, I)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, I)	(64- 72)
3. Ejection fraction <25%	1 1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.1, A)	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (7.0, 2.0, O)	3 1 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.4, I)	1 1 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, O)	2 1 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, I)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	1 3 3 1 2 3 4 5 6 7 8 9 (2.5, 2.1, O)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	(73- 81)
D. TWO VESSEL DISEASE WITHOUT PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT	3 5	1 1 5 1	5 3	1 3 4	1 1 1 5	1 3 3	1 5 1 1	1 3 3 1	6 2	
1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (5.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, I)	1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.2, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	(82- 90)
2. Ejection fraction 25-49%	3 5 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	5 3 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	4 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, I)	1 4 2 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(91- 99)
3. Ejection fraction <25%	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 1.0, A)	2 3 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, O)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 2 5 1 1 1 2 3 4 5 6 7 8 9 (9.0, 1.2, A)	1 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.5, O)	1 1 1 4 1 2 3 4 5 6 7 8 9 (9.0, 0.9, I)	1 1 2 1 2 1 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	2 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	(100-108)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

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	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
E. SINGLE VESSEL DISEASE - PROXIMAL LEFT ANTERIOR DESCENDING										
1. Ejection fraction >50%	1 1 6 1 4 2 1 3 5 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 4 3 1 1 3 2 1 3 5 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 1 2 2 1 1 2 1 3 1 1 1 3 4 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	(109-117)
2. Ejection fraction 25-49%	3 5 1 4 1 2 3 5 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.5, I)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	5 3 1 2 2 1 2 3 5 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	3 1 3 1 2 1 2 2 1 4 4 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	(118-126)
3. Ejection fraction <25%	1 3 4 1 1 4 1 1 3 5 1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, O)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 1 4 1 3 2 1 1 3 5 1 2 3 4 5 6 7 8 9 (8.5, 1.4, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	2 2 1 1 2 3 2 1 1 1 3 5 1 2 3 4 5 6 7 8 9 (5.0, 2.2, O)	1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	(127-135)
F. SINGLE VESSEL DISEASE - ANY VESSEL OTHER THAN PLAD										
1. Ejection fraction >50%	1 2 3 2 2 1 3 1 1 1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 3 2 1 3 1 3 1 5 3 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (2.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 1 2 1 1 1 4 3 1 1 5 2 1 2 3 4 5 6 7 8 9 (4.5, 2.0, O)	1 2 3 4 5 6 7 8 9 (1.5, 0.8, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(136-144)
2. Ejection fraction 25-49%	1 2 2 3 2 1 3 1 1 1 5 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 1 3 1 2 3 1 2 1 1 5 3 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (2.5, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 1 2 1 1 1 1 3 3 1 1 5 2 1 2 3 4 5 6 7 8 9 (4.5, 2.1, O)	1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	(145-153)
3. Ejection fraction <25%	1 1 1 1 1 3 4 1 1 1 1 1 3 4 1 2 3 4 5 6 7 8 9 (7.5, 1.8, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.2, 1)	1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 2 1 1 2 1 4 1 2 1 1 3 4 1 2 3 4 5 6 7 8 9 (6.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 1 2 2 1 1 4 2 1 1 6 2 1 2 3 4 5 6 7 8 9 (3.5, 1.8, I)	1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.2, A)	(154-162)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 2

UNSTABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
NO SYMPTOMS ON MEDICAL THERAPY (NOT PREVIOUSLY RECEIVING MAXIMUM MEDICAL THERAPY)										
A. LEFT MAIN DISEASE	8	17 11211 11		17	1 7 1 1 1 11		1214	12 32	22 21 1	
1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (3.0, 2.3, D)	1 2 3 4 5 6 7 8 9 (8.5, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.1, I)	1 2 3 4 5 6 7 8 9 (4.0, 1.8, I)	(163-171)
2. Ejection fraction 25-49%	8	17 11211 11		17	1 16 112 1 11		314	2222	22 21 1	
	1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	1 2 3 4 5 6 7 8 9 (9.0, 0.1, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (3.0, 2.3, D)	1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.0, I)	1 2 3 4 5 6 7 8 9 (4.0, 1.9, D)	(172-180)
3. Ejection fraction <25%	1 1 6 1	2 1 4 1 1 2 1 1 1 11		1 1 6 1	1 1 2 4 1 1 2 1 1 2		1 1 1 2 3	1 3 2 2	2 2 2	
	1 2 3 4 5 6 7 8 9 (9.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.5, 1.4, A)	1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	1 2 3 4 5 6 7 8 9 (9.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (3.0, 2.4, D)	1 2 3 4 5 6 7 8 9 (8.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.8, I)	1 2 3 4 5 6 7 8 9 (4.0, 2.0, D)	(181-189)
B. THREE VESSEL DISEASE	2 5	2 1 3 2		1 4 3	2 2 1 2 1		2 1 3 1 1	1 1 5 1	1 3 1 1	
1. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.3, I)	1 2 3 4 5 6 7 8 9 (8.0, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.0, 1.3, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (5.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	(190-198)
2. Ejection fraction 25-49%	4 4	2 2 1 3		1 3 4	2 2 2 2	1 1 1 1 3	1 2 2 1 2	1 4 1 1	1 3 1 2	
	1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 2 3 4 5 6 7 8 9 (5.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	(199-207)
3. Ejection fraction <25%	1 1 1 5	1 1 3 1 3	1 1 1 1 4	1 2 5 1	2 1 1 2 2	1 2 2 4	1 3 1 2 1 1 1 3 1 1	1 1 2 1 2		
	1 2 3 4 5 6 7 8 9 (9.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (6.5, 2.1, I)	1 2 3 4 5 6 7 8 9 (8.5, 1.9, I)	1 2 3 4 5 6 7 8 9 (9.0, 1.5, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.9, I)	1 2 3 4 5 6 7 8 9 (9.0, 1.9, I)	1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	(208-216)
C. TWO VESSEL DISEASE WITH PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. With a very positive exercise ECG	3 5	1 4 21	2 1 5	1 5 2	1 1 3 1 2	3 1 4	3 1 1 2 1	1 1 1 4 1	2 5 1	
a. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	(217-225)
	1 2 5	1 2 2 1 2	1 3 4	1 4 3	1 2 2 3	2 2 4	1 1 1 2 2 1	1 2 3 2	1 1 5 1	
b. Ejection fraction 25-49%	1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.5, 1.0, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(226-234)
	1 1 1 4	2 1 1 2 1 1	1 1 2 6	1 1 1 2 3	1 1 1 1 3 1	1 1 1 4	2 1 1 1 1 2	2 1 2 1 2	1 1 1 3 2	
c. Ejection fraction <25%	1 2 3 4 5 6 7 8 9 (8.5, 1.8, I)	1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.8, I)	1 2 3 4 5 6 7 8 9 (6.0, 1.9, D)	1 2 3 4 5 6 7 8 9 (8.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (6.5, 2.2, D)	1 2 3 4 5 6 7 8 9 (4.0, 1.8, D)	1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	(235-243)
2. With a negative to minimally positive exercise ECG	2 4 7	1 4 3	1 1 1 2 3	2 1 4 1	2 4 1 1	1 1 2 2 2	1 2 1 2 2	1 3 3 1	1 2 3 1 1	
a. Ejection fraction >50%	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (5.0, 0.9, I)	1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, I)	1 2 3 4 5 6 7 8 9 (3.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	(244-252)
	1 1 4 2	1 2 2 3	1 1 1 3 2	1 1 3 1 2	1 2 2 2 1 1	2 1 1 2 2	1 1 2 2 2	1 2 2 3	1 1 4 1 1	
b. Ejection fraction 25-49%	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (8.0, 1.4, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, I)	1 2 3 4 5 6 7 8 9 (4.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	(253-261)
	1 1 1 3 2	1 1 1 1 4 2	1 1 3 2	2 1 2 3 2	1 2 1 2 2	1 2 2 1 2	2 1 2 1 2 1 1	1 1 4 1		
c. Ejection fraction <25%	1 2 3 4 5 6 7 8 9 (8.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (6.0, 1.8, D)	1 2 3 4 5 6 7 8 9 (8.0, 1.6, D)	1 2 3 4 5 6 7 8 9 (7.0, 1.8, D)	1 2 3 4 5 6 7 8 9 (5.0, 1.5, D)	1 2 3 4 5 6 7 8 9 (7.5, 1.9, I)	1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	1 2 3 4 5 6 7 8 9 (3.5, 1.5, I)	1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	(262-270)

Appropriateness scale: 1 - extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 2

UNSTABLE ANGINA

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
D. TWO VESSEL DISEASE WITHOUT PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. With a very positive exercise ECG										
a. Ejection fraction >50%	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.1, A)	2 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (3.5, 1.4, 1)	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, 1)	2 1 2 1 2 1 2 3 4 5 6 7 8 9 (3.0, 1.2, 1)	4 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 0.9, A)	(271-279)
b. Ejection fraction 25-49%	2 1 3 2 1 1 2 3 4 5 6 7 8 9 (8.0, 0.9, 1)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.1, A)	1 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, 1)	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 1 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, 1)	1 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, 1)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 0)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.4, 1)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	(280-288)
c. Ejection fraction <25%	1 1 5 1 1 1 2 3 4 5 6 7 8 9 (8.0, 1.4, 1)	1 1 4 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.0, A)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.8, 1)	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.6, D)	1 1 4 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, 1)	1 1 1 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.8, 1)	1 1 1 3 1 1 2 3 4 5 6 7 8 9 (6.0, 2.2, D)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.4, 1)	1 2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	(289-297)
2. With a negative to minimally positive exercise ECG										
a. Ejection fraction >50%	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (5.5, 1.6, D)	1 4 1 2 1 2 3 4 5 6 7 8 9 (3.0, 0.8, A)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	1 2 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.7, 1)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.1, A)	1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.5, 1)	2 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.1, 1)	2 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 0)	(298-306)
b. Ejection fraction 25-49%	1 3 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.5, 1)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.1, A)	1 3 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 1)	1 1 2 1 2 1 2 3 4 5 6 7 8 9 (4.5, 1.9, D)	1 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.5, 1)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.9, 1)	1 2 1 1 2 1 2 3 4 5 6 7 8 9 (4.0, 2.1, D)	2 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	(307-315)
c. Ejection fraction <25%	1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.6, 1)	1 5 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 2.0, 1)	2 2 1 2 1 2 1 2 3 4 5 6 7 8 9 (4.5, 2.0, D)	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, 1)	1 4 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, 1)	2 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 2.0, 1)	3 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.1, 1)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	(316-324)
E. SINGLE VESSEL DISEASE - PROXIMAL LEFT ANTERIOR DESCENDING										
1. With a very positive exercise ECG										
a. Ejection fraction >50%	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.2, A)	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.1, 1)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (4.5, 1.6, D)	2 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.4, A)	1 2 2 3 1 2 3 4 5 6 7 8 9 (3.0, 1.4, 1)	1 2 1 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	(325-333)
b. Ejection fraction 25-49%	1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 4 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, A)	1 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.4, 1)	2 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.8, D)	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, 1)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	2 1 1 3 1 2 3 4 5 6 7 8 9 (8.0, 1.1, 1)	(334-342)
c. Ejection fraction <25%	1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.6, 1)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (4.5, 1.4, D)	1 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 1.1, 1)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.9, 1)	2 1 2 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.5, D)	1 1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, 1)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (5.5, 2.1, D)	2 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.2, 1)	1 2 2 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	(343-351)
2. With a negative to minimally positive exercise ECG										
a. Ejection fraction >50%	2 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 0.9, 1)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, 1)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	1 1 1 3 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	3 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.3, 1)	1 2 1 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.3, 1)	1 2 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, 1)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.7, 1)	(352-360)
b. Ejection fraction 25-49%	3 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1)	1 1 3 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, 1)	1 2 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.3, 1)	3 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.4, 1)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	3 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, 1)	3 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 3 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, 1)	(361-369)
c. Ejection fraction <25%	1 4 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.2, 1)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, 1)	2 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	2 1 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.7, D)	3 1 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, 1)	1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	2 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.1, 1)	3 3 1 1 2 3 4 5 6 7 8 9 (2.0, 0.6, 1)	1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.7, 1)	(370-378)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 2 UNSTABLE ANGINA	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
F. SINGLE VESSEL DISEASE - ANY VESSEL OTHER THAN FLAD										
1. With a very positive exercise ECG										
a. Ejection fraction >50%	1 5 1 1 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (2.5, 0.9, A)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	2 4 1 1 3 4 1 2 3 4 5 6 7 8 9 (6.0, 0.9, I)	1 2 3 4 5 6 7 8 9 (2.5, 0.6, A)	2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.4, I)	1 2 2 1 1 1 5 3 1 2 3 4 5 6 7 8 9 (3.0, 1.8, I)	1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	(379-387)
b. Ejection fraction 25-49%	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.2, I)	1 3 2 2 1 2 3 4 5 6 7 8 9 (2.5, 0.9, A)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	4 2 1 1 1 4 3 1 2 3 4 5 6 7 8 9 (5.5, 1.1, I)	1 1 4 1 1 2 3 4 5 6 7 8 9 (2.0, 0.5, A)	1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, I)	1 3 1 1 1 1 5 3 1 2 3 4 5 6 7 8 9 (2.5, 2.0, 0)	1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	(388-396)
c. Ejection fraction <25%	3 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 2.0, 0)	2 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	2 1 2 1 1 1 3 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.5, 0)	1 2 2 2 1 2 3 4 5 6 7 8 9 (2.0, 0.6, A)	1 2 2 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	2 3 1 1 1 6 2 1 2 3 4 5 6 7 8 9 (2.0, 1.5, I)	1 2 3 4 5 6 7 8 9 (1.0, 0.2, A)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	(397-405)
2. With a negative to minimally positive exercise ECG										
a. Ejection fraction >50%	1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.1, 0)	2 5 1 1 2 3 4 5 6 7 8 9 (2.0, 0.4, A)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, 0)	3 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 2.0, I)	6 3 1 1 2 3 4 5 6 7 8 9 (1.5, 0.6, A)	1 1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.8, 0)	4 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.6, I)	6 2 1 2 3 4 5 6 7 8 9 (1.0, 0.2, A)	2 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.0, 0)	(406-414)
b. Ejection fraction 25-49%	1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.9, I)	2 6 1 2 3 4 5 6 7 8 9 (2.0, 0.3, A)	1 1 4 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, 0)	3 1 1 1 1 1 4 6 1 2 3 4 5 6 7 8 9 (2.0, 1.7, I)	1 2 3 4 5 6 7 8 9 (1.5, 0.5, A)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.6, 0)	4 2 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.2, A)	6 2 1 2 3 4 5 6 7 8 9 (1.0, 0.2, A)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.8, I)	(415-423)
c. Ejection fraction <25%	1 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.7, I)	2 6 1 2 3 4 5 6 7 8 9 (2.0, 0.2, A)	1 1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	3 2 1 1 5 3 1 2 3 4 5 6 7 8 9 (2.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (1.0, 0.4, A)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	5 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 1.0, A)	6 2 1 2 3 4 5 6 7 8 9 (1.0, 0.2, A)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	(424-432)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 3

ACUTE MYOCARDIAL INFARCTION	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
CARDIOGENIC SHOCK PRESENT	1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.8, I)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.2, 1)	2 3 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.8, 1)	2 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 2.2, D)	1 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.9, 1)	1 1 1 1 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.9, 1)	(1- 9)
1. Left main disease										
2. Three vessel disease	1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 2 1 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	1 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 2 1 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.4, 1)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	2 2 2 2 1 1 2 3 4 5 6 7 8 9 (6.5, 2.5, D)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.1, 1)	(10- 18)
3. Two vessel disease	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.2, 1)	2 2 2 1 4 3 1 2 3 4 5 6 7 8 9 (4.0, 1.4, 1)	1 2 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	2 1 3 2 1 3 1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	1 2 1 3 3 1 2 3 4 5 6 7 8 9 (4.0, 1.1, 1)	1 1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	2 1 1 3 1 1 5 1 1 2 3 4 5 6 7 8 9 (5.5, 2.4, D)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (2.0, 0.6, A)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	(19- 27)
4. Single vessel disease	1 2 1 1 3 1 3 2 1 2 3 4 5 6 7 8 9 (7.5, 1.4, 1)	1 2 2 1 1 5 3 1 2 3 4 5 6 7 8 9 (3.0, 1.6, 1)	1 1 2 3 1 2 2 2 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 1 2 3 1 2 2 2 1 5 3 1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	1 2 2 2 1 5 3 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	3 1 1 1 1 1 2 6 1 1 2 3 4 5 6 7 8 9 (4.5, 2.1, D)	1 1 4 3 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	(28- 36)
EVOLVING MYOCARDIAL INFARCTION (FIRST SIX HOURS) -- ASYMPTOMATIC										
ANY ISCHEMIC ANATOMY, ANY EJECTION FRACTION	3 1 2 1 1 4 1 3 1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	4 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, D)	4 1 2 1 4 4 1 2 3 4 5 6 7 8 9 (1.5, 1.4, A)	1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (1.5, 0.5, A)	1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, D)	6 1 1 1 7 1 1 2 3 4 5 6 7 8 9 (1.0, 0.9, A)	1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (1.0, 0.1, A)	1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, D)	(37- 45)
EVOLVING MYOCARDIAL INFARCTION (FIRST SIX HOURS) -- CONTINUING PAIN OR TOTAL OCCLUSION ON ANGIOGRAPHY; WITHOUT THROMBOLYSIS										
1. Left main disease	4 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 3 1 3 1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.9, 1)	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.1, I)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.1, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	(46- 54)
a. Ejection fraction >50%	4 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 3 1 3 1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.9, 1)	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.1, 1)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.1, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	(55- 63)
b. Ejection fraction 25-49%	4 4 1 2 3 4 5 6 7 8 9 (8.5, 0.5, A)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 3 1 3 1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	2 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.9, 1)	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.1, 1)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.1, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	(64- 72)
c. Ejection fraction <25%	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	3 1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.5, A)	1 4 3 1 2 3 4 5 6 7 8 9 (5.0, 1.6, 1)	1 2 2 3 1 1 2 3 4 5 6 7 8 9 (8.0, 1.2, A)	2 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	2 3 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, 1)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.5, 1.9, 1)	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (6.5, 1.6, D)	1 4 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1)	(73- 81)
2. Three vessel disease	1 1 2 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (6.5, 2.5, D)	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 1 3 3 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, 0)	2 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 4 1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	1 2 3 1 1 2 3 4 5 6 7 8 9 (3.5, 1.6, 1)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.1, A)	(82- 90)
a. Ejection fraction >50%	1 2 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (6.5, 2.5, D)	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 1 3 3 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, 0)	2 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 4 1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	1 2 3 1 1 2 3 4 5 6 7 8 9 (3.5, 1.6, 1)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.1, A)	(91- 99)
b. Ejection fraction 25-49%	1 2 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, A)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (6.5, 2.5, D)	1 2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 1.0, I)	1 1 3 3 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, 0)	2 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 4 1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	1 2 3 1 1 2 3 4 5 6 7 8 9 (3.5, 1.6, 1)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.1, A)	
c. Ejection fraction <25%	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.5, 1)	1 1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	3 1 1 3 1 2 3 4 5 6 7 8 9 (7.0, 1.8, 1)	1 1 2 2 2 1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.5, 1.9, 1)	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	2 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.1, 1)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, D)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.5, 1)	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 3

ACUTE MYOCARDIAL INFARCTION

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
3. Two vessel disease with proximal left anterior descending involvement	1 1 2 4 1 1 2 3 1 1 1 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 1 5 1 1 1 3 2 1 2 2 1 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 2 1 1 1 2 2 1 1 1 1 1 1 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(100-108)
a. Ejection fraction >50%	(8.5, 1.0, A)	(6.0, 2.1, D)	(9.0, 0.4, I)	(8.0, 0.6, A)	(5.0, 1.8, D)	(7.5, 1.1, I)	(6.5, 1.8, I)	(2.5, 1.5, I)	(8.0, 1.0, A)	
b. Ejection fraction 25-49%	1 1 2 4 1 1 2 3 1 1 1 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 1 5 1 1 1 3 2 1 2 2 1 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 1 2 1 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(109-117)
	(8.5, 1.0, A)	(6.0, 2.1, D)	(9.0, 0.6, I)	(8.0, 0.6, A)	(5.0, 1.8, D)	(7.5, 1.2, I)	(6.5, 1.9, I)	(2.5, 1.4, I)	(8.0, 1.0, A)	
c. Ejection fraction <25%	1 1 2 2 2 1 1 2 1 1 3 1 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 1 3 2 1 2 2 1 1 1 1 1 2 1 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 1 1 2 1 1 2 3 1 2 1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(118-126)
	(7.5, 1.5, I)	(4.0, 2.4, O)	(7.0, 1.7, I)	(7.0, 1.4, I)	(2.5, 2.1, D)	(6.5, 1.6, I)	(5.5, 2.2, D)	(2.0, 1.1, I)	(7.0, 1.1, I)	
4. Two vessel disease without proximal left anterior descending involvement	3 2 1 1 1 1 2 2 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 3 2 1 1 1 1 2 2 1 1 3 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 2 1 1 1 1 2 2 2 1 1 1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(127-135)
a. Ejection fraction >50%	(6.0, 1.1, I)	(4.0, 1.4, I)	(8.0, 0.8, I)	(5.5, 1.2, I)	(3.5, 1.4, I)	(7.5, 1.0, A)	(4.5, 2.1, D)	(2.0, 0.9, I)	(7.0, 1.1, I)	
b. Ejection fraction 25-49%	3 2 1 1 1 1 2 2 1 1 2 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			2 2 2 1 1 1 1 2 2 1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 2 1 1 1 1 2 2 2 1 1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(136-144)
	(6.0, 1.1, I)	(4.0, 1.4, I)	(8.0, 1.0, I)	(5.5, 1.4, I)	(3.5, 1.4, I)	(7.5, 1.1, A)	(4.5, 2.1, D)	(2.0, 0.9, I)	(7.0, 1.1, I)	
c. Ejection fraction <25%	1 1 2 2 1 1 3 1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 2 1 2 1 1 1 3 1 2 1 1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 2 2 2 1 1 2 2 1 1 1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(145-153)
	(5.5, 1.5, I)	(2.5, 1.5, I)	(7.0, 1.7, I)	(5.5, 1.5, I)	(2.5, 1.6, I)	(6.0, 1.1, I)	(3.0, 1.8, I)	(2.0, 0.7, I)	(6.0, 1.2, A)	
5. Single vessel disease - proximal left anterior descending	1 2 1 4 1 2 2 1 2 3 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			2 1 2 2 1 2 1 1 1 1 1 2 2 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 3 2 1 3 3 3 1 1 5 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(154-162)
a. Ejection fraction >50%	(8.5, 1.0, A)	(4.0, 1.8, D)	(9.0, 0.4, I)	(8.0, 1.0, I)	(3.0, 1.4, I)	(8.0, 0.7, I)	(5.0, 1.1, I)	(3.0, 1.0, I)	(8.0, 0.4, I)	
b. Ejection fraction 25-49%	1 2 1 4 1 2 2 1 2 3 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			2 1 2 2 1 2 1 1 1 1 1 2 2 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 4 1 1 3 3 1 1 5 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(163-171)
	(8.5, 1.0, A)	(4.0, 1.8, D)	(9.0, 0.4, I)	(8.0, 1.0, I)	(3.0, 1.4, I)	(8.0, 0.7, I)	(5.0, 1.0, I)	(3.0, 1.0, I)	(8.0, 0.4, I)	
c. Ejection fraction <25%	1 2 1 1 3 2 2 1 1 2 3 4 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			2 1 2 2 3 1 2 1 1 2 2 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 1 1 1 1 1 4 1 1 1 5 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(172-180)
	(7.5, 1.6, I)	(2.5, 1.9, D)	(9.0, 0.4, I)	(7.0, 1.9, O)	(2.0, 1.3, I)	(8.0, 0.7, I)	(4.0, 2.0, I)	(1.0, 0.9, I)	(8.0, 0.4, I)	
6. Single vessel disease - any vessel other than PLAD	1 1 2 1 2 2 2 2 1 1 3 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 2 1 1 1 1 3 3 1 1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			2 1 2 1 1 1 4 4 1 1 2 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(181-189)
a. Ejection fraction >50%	(5.5, 2.4, D)	(2.5, 1.0, I)	(8.0, 0.7, I)	(4.5, 2.5, D)	(2.0, 0.8, A)	(8.0, 1.0, I)	(3.0, 1.9, I)	(1.5, 0.5, A)	(7.0, 1.5, I)	
b. Ejection fraction 25-49%	1 1 2 1 2 1 2 2 2 2 1 1 3 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			1 2 1 1 1 1 3 3 1 1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			2 1 3 1 1 4 4 1 1 2 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(190-198)
	(5.5, 2.4, D)	(2.5, 1.0, I)	(8.0, 0.7, I)	(4.5, 2.5, D)	(2.0, 0.8, A)	(8.0, 1.0, I)	(3.0, 1.5, I)	(1.5, 0.5, A)	(7.0, 1.5, I)	
c. Ejection fraction <25%	1 2 2 1 1 1 3 2 2 1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			2 1 1 1 1 1 1 4 4 2 1 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			3 1 3 1 1 4 4 2 1 2 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9			(199-207)
	(4.0, 2.0, D)	(2.0, 0.9, A)	(8.0, 1.1, I)	(3.5, 2.1, I)	(1.5, 0.5, A)	(7.0, 1.3, I)	(2.5, 1.6, A)	(1.5, 0.5, A)	(6.0, 1.5, I)	

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 3

ACUTE MYOCARDIAL INFARCTION

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
EVOLVING MYOCARDIAL INFARCTION (FIRST SIX HOURS) -- CONTINUING PAIN OR TOTAL OCCLUSION ON ANGIOGRAPHY; WITH THROMBOLYSIS										
1. Left main disease										
a. Ejection fraction >50%	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, I)	3 1 3 1 2 3 4 5 6 7 8 9 (7.0, 1.7, I)	2 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	2 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 2 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.7, I)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.5, I)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.4, A)	1 2 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(208-216)
b. Ejection fraction 25-49%	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.9, I)	3 1 3 1 2 3 4 5 6 7 8 9 (7.0, 1.7, I)	2 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	2 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 2 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.7, I)	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.5, I)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.4, A)	1 2 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(217-225)
c. Ejection fraction <25%	1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.2, A)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	4 3 1 2 3 4 5 6 7 8 9 (5.0, 1.7, I)	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.5, I)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	1 3 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.7, I)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 2.0, I)	1 1 2 4 1 2 3 4 5 6 7 8 9 (6.0, 1.9, O)	1 3 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	(226-234)
2. Three vessel disease										
a. Ejection fraction >50%	1 1 3 3 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (5.5, 2.0, O)	1 2 4 1 2 3 4 5 6 7 8 9 (9.0, 0.6, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.1, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, I)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.9, I)	(235-243)
b. Ejection fraction 25-49%	1 1 3 3 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (5.5, 2.0, D)	1 2 4 1 2 3 4 5 6 7 8 9 (9.0, 0.7, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.1, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.6, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 2.1, D)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.9, I)	(244-252)
c. Ejection fraction <25%	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, I)	3 1 3 1 2 3 4 5 6 7 8 9 (8.0, 1.7, I)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.5, I)	2 1 1 3 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, I)	1 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.7, I)	2 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.7, I)	2 2 3 1 1 2 3 4 5 6 7 8 9 (2.5, 1.1, A)	1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	(253-261)
3. Two vessel disease with proximal left anterior descending involvement										
a. Ejection fraction >50%	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.5, D)	1 1 4 1 2 3 4 5 6 7 8 9 (9.0, 0.5, I)	2 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.1, I)	1 1 5 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 1 2 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, I)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.8, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.1, I)	1 5 1 1 2 3 4 5 6 7 8 9 (8.0, 0.7, I)	(262-270)
b. Ejection fraction 25-49%	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.5, D)	1 1 4 1 2 3 4 5 6 7 8 9 (9.0, 0.7, I)	2 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.1, I)	1 1 5 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 1 2 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	1 2 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.9, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.1, I)	1 5 1 1 2 3 4 5 6 7 8 9 (8.0, 0.7, I)	(271-279)
c. Ejection fraction <25%	1 1 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	2 1 1 1 3 1 2 3 4 5 6 7 8 9 (3.5, 1.5, I)	3 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.7, I)	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	2 2 1 3 1 2 3 4 5 6 7 8 9 (2.5, 1.5, I)	1 1 1 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.8, I)	2 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.5, 2.2, I)	2 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.3, I)	(280-288)
4. Two vessel disease without proximal left anterior descending involvement										
a. Ejection fraction >50%	1 3 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.6, I)	2 2 1 3 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	1 1 2 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, I)	1 4 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, I)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.5, I)	2 1 2 1 1 2 3 4 5 6 7 8 9 (7.5, 1.0, I)	1 1 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.1, D)	2 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.9, I)	1 2 1 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(289-297)
b. Ejection fraction 25-49%	1 3 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.6, I)	2 2 1 3 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	2 2 1 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.5, I)	1 1 1 2 1 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 1 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.1, D)	2 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.9, I)	1 2 1 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.6, I)	(298-306)
c. Ejection fraction <25%	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	4 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.2, I)	2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	4 1 1 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.5, I)	1 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	3 2 2 1 1 2 3 4 5 6 7 8 9 (2.0, 2.0, I)	3 3 1 1 2 3 4 5 6 7 8 9 (2.0, 0.7, I)	1 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, O)	(307-315)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 3

ACUTE MYOCARDIAL INFARCTION

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
5. Single vessel disease - proximal left anterior descending										
a. Ejection fraction >50%	2 2 1 3 2 1 2 1 2 3 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.1, 1)	1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 1.9, 0) (8.5, 0.5, 1)		1 2 1 2 1 2 1 1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.4, 1) (3.0, 1.6, 1) (8.0, 1.2, 1)		1 1 2 2 1 3 1 3 1 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I) (2.0, 0.9, 1) (8.0, 0.5, 1)	(316-324)
b. Ejection fraction 25-49%	2 2 1 3 2 1 2 1 2 3 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.1, 1)	(4.0, 1.9, 0) (8.5, 0.5, 1)		1 2 1 2 1 2 1 1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.4, 1) (3.0, 1.6, 1) (8.0, 1.2, 1)		1 1 3 1 1 3 1 3 1 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1) (2.0, 0.9, 1) (8.0, 0.5, 1)	(325-333)
c. Ejection fraction <25%	1 3 1 1 2 3 1 1 1 2 3 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	(2.5, 2.0, 0) (8.5, 0.5, 1)		1 2 2 1 4 2 1 1 2 2 3 3 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.0, 1.9, 0) (1.0, 1.3, 1) (8.0, 1.3, 1)		1 2 1 1 1 1 4 2 1 1 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.1, 1) (1.0, 0.6, 1) (8.0, 0.5, 1)	(334-342)
6. Single vessel disease - any vessel other than PIAD										
a. Ejection fraction >50%	1 1 3 2 1 2 2 2 2 1 3 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.1, 0)	(2.5, 1.0, 1) (8.0, 0.7, 1)		1 3 1 1 1 1 3 3 1 1 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (3.0, 2.6, 0) (2.0, 0.8, A) (8.0, 1.0, 1)		3 1 1 1 1 1 1 4 4 1 1 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.5, 2.1, 1) (1.5, 0.5, A) (8.0, 1.4, I)	(343-351)
b. Ejection fraction 25-49%	1 1 3 2 1 2 2 2 2 1 3 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 2.1, 0)	(2.5, 1.0, 1) (8.0, 0.7, 1)		1 3 1 1 1 1 3 3 1 1 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (3.0, 2.6, 0) (2.0, 0.8, A) (8.0, 1.0, I)		3 1 2 1 1 4 4 1 1 1 3 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.5, 1.8, 1) (1.5, 0.5, A) (8.0, 1.4, 1)	(352-360)
c. Ejection fraction <25%	1 2 3 1 1 3 2 2 1 1 1 2 2 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (4.0, 1.8, 0)	(2.0, 0.9, A) (8.0, 1.2, I)		2 2 1 1 1 1 4 4 2 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (2.5, 2.0, 1) (1.5, 0.5, A) (7.0, 1.5, I)		4 1 2 1 4 4 6 1 2 1 2 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (1.5, 1.6, A) (1.5, 0.5, A) (6.0, 1.6, 1)	(361-369)

Appropriateness scale: 1 - extremely inappropriate, 5 = equivocal, 9 - extremely appropriate

Chapter 4 POST MYOCARDIAL INFARCTION	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
WITHIN 21 DAYS OF AMI; PATIENT HAS CONTINUING PAIN										
A. LEFT MAIN OISEASE										
1. Ejection fraction >50%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 3 4 5 6 7 8 9 (5.0, 0.2, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 3 4 5 6 7 8 9 (5.0, 0.2, A)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	7 1 1 2 3 4 5 6 7 8 9 (5.0, 0.1, A)	(1- 9)
2. Ejection fraction 25-49%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.0, I)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 7 1 2 3 4 5 6 7 8 9 (5.0, 0.2, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 7 1 2 3 4 5 6 7 8 9 (5.0, 0.2, A)	1 1 1 1 3 1 2 3 4 5 6 7 8 9 (8.0, 1.6, I)	1 1 1 3 1 2 3 4 5 6 7 8 9 (8.5, 1.0, I)	6 1 1 2 3 4 5 6 7 8 9 (5.0, 0.1, I)	(10- 18)
3. Ejection fraction <25%	2 6 1 2 3 4 5 6 7 8 9 (9.0, 1.0, I)	2 6 1 2 3 4 5 6 7 8 9 (9.0, 1.0, I)	1 7 1 2 3 4 5 6 7 8 9 (5.0, 0.2, A)	2 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.1, I)	2 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.1, I)	1 7 1 2 3 4 5 6 7 8 9 (5.0, 0.2, A)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.9, I)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.8, I)	7 1 1 2 3 4 5 6 7 8 9 (5.0, 0.1, A)	(19- 27)
C. THREE VESSEL DISEASE										
1. Ejection fraction >50%	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	4 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.9, A)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, D)	4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	(28- 36)
2. Ejection fraction 25-49%	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.4, A)	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	4 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, O)	1 3 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	(37- 45)
3. Ejection fraction <25%	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, I)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 2.0, D)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	2 1 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.4, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.8, D)	2 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.0, I)	2 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (6.5, 1.9, D)	1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	1 5 3 1 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	(46- 54)
D. TWO VESSEL DISEASE WITH PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. Ejection fraction >50%	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, O)	1 1 6 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.5, D)	3 5 1 2 3 4 5 6 7 8 9 (9.0, 0.8, A)	5 2 1 2 3 4 5 6 7 8 9 (7.0, 0.6, I)	2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.7, I)	(55- 63)
2. Ejection fraction 25-49%	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	2 4 2 1 2 3 4 5 6 7 8 9 (7.0, 1.5, O)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.5, D)	3 1 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 4 2 1 2 3 4 5 6 7 8 9 (7.0, 0.7, I)	2 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.7, I)	2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.6, I)	(64- 72)
3. Ejection fraction <25%	1 1 3 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	3 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 2.1, O)	1 2 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.0, A)	2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	3 1 3 1 1 2 3 4 5 6 7 8 9 (6.0, 2.2, O)	1 3 4 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	1 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	2 1 3 1 2 3 4 5 6 7 8 9 (2.0, 2.0, I)	5 2 1 2 3 4 5 6 7 8 9 (7.0, 0.6, I)	(73- 81)
E. TWO VESSEL DISEASE WITHOUT PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. Ejection fraction >50%	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	4 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	(82- 90)
2. Ejection fraction 25-49%	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	2 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.6, O)	3 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	1 2 3 2 1 2 3 4 5 6 7 8 9 (5.0, 1.4, D)	5 1 2 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 3 1 3 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	2 1 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.4, I)	1 4 1 2 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	(91- 99)
3. Ejection fraction <25%	1 1 1 4 1 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	1 1 2 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 1 2 3 1 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	1 1 2 1 2 3 4 5 6 7 8 9 (3.5, 2.2, D)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 3 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	2 3 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.5, I)	5 1 2 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	(100-108)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 4 POST MYOCARDIAL INFARCTION	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
F. SINGLE VESSEL DISEASE - PROXIMAL LEFT ANTERIOR DESCENDING										
1. Ejection fraction >50%	1 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.4, I)	1 1 3 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.2, D)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	4 1 1 1 1 1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.2, I)	1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	3 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(109-117)
2. Ejection fraction 25-49%	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, D)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, I)	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	1 3 1 1 1 1 1 1 3 3 1 2 3 4 5 6 7 8 9 (5.5, 1.4, I)	1 2 3 4 5 6 7 8 9 (3.0, 1.1, I)	3 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(118-126)
3. Ejection fraction <25%	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.6, A)	2 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.6, I)	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	1 2 1 1 1 1 1 2 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, I)	1 2 3 4 5 6 7 8 9 (2.5, 1.6, I)	3 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	(127-135)
G. SINGLE VESSEL DISEASE - ANY VESSEL OTHER THAN PLAD										
a. Ejection fraction >50%	2 3 3 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 1 2 4 1 2 3 4 5 6 7 8 9 (3.5, 0.9, A)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (3.0, 0.8, A)	5 1 2 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 2 1 3 1 4 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.8, I)	1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	2 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	(136-144)
b. Ejection fraction 25-49%	2 3 3 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 1 3 3 1 2 3 4 5 6 7 8 9 (3.0, 0.8, A)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (3.0, 0.8, A)	5 1 2 1 2 3 4 5 6 7 8 9 (7.0, 0.6, A)	1 2 2 2 1 4 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	2 3 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	(145-153)
c. Ejection fraction <25%	1 3 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.1, A)	2 2 2 2 1 2 3 4 5 6 7 8 9 (2.5, 1.0, I)	4 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.1, A)	2 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	5 2 1 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	1 1 1 2 1 4 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 2.0, I)	1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	1 4 3 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	(154-162)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 4

POST MYOCARDIAL INFARCTION

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
WITHIN 21 DAYS AFTER AMI; PATIENT IS ASYMPTOMATIC, WITH VERY POSITIVE EXERCISE ECG										
A. LEFT MAIN DISEASE										
1. Ejection fraction >50%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 5 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 1 2 4 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 2 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.0, A)	1 2 1 4 1 1 4 2 1 2 3 4 5 6 7 8 9 (8.5, 1.0, I)	1 2 1 4 1 1 4 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	(163-171)
2. Ejection fraction 25-49%	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 7 1 2 5 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 7 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	1 7 1 1 2 4 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	1 2 1 3 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	3 1 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 3 1 3 1 1 4 2 1 2 3 4 5 6 7 8 9 (7.5, 1.1, A)	1 4 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	(172-180)
3. Ejection fraction <25%	1 1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.2, I)	2 1 5 1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 1.0, I)	1 2 5 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	2 1 5 1 2 5 1 1 2 4 1 2 3 4 5 6 7 8 9 (9.0, 1.5, I)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 1.1, A)	1 2 4 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	3 1 3 1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.9, I)	1 4 2 1 2 3 4 5 6 7 8 9 (7.5, 2.0, I)	1 4 2 1 2 3 4 5 6 7 8 9 (5.0, 1.0, I)	(181-189)
C. THREE VESSEL DISEASE										
1. Ejection fraction >50%	2 3 3 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	1 3 4 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, I)	1 3 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.2, A)	(190-198)
2. Ejection fraction 25-49%	1 4 3 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.5, A)	1 3 4 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	2 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.2, I)	1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.6, I)	1 3 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	2 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, O)	1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.2, A)	(199-207)
3. Ejection fraction <25%	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.5, I)	2 1 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 2.1, D)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	2 1 1 1 3 1 2 3 4 5 6 7 8 9 (7.0, 2.0, I)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.5, 1.2, I)	2 3 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	2 1 2 1 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 2.4, D)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	(208-216)
D. TWO VESSEL DISEASE WITH PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. Ejection fraction >50%	3 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	2 2 4 1 2 3 4 5 6 7 8 9 (6.5, 1.5, D)	4 4 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	2 3 1 2 1 2 3 4 5 6 7 8 9 (7.0, 0.9, I)	2 1 5 1 2 3 4 5 6 7 8 9 (7.0, 1.4, O)	1 3 4 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	3 1 3 1 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	1 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.5, I)	(217-225)
2. Ejection fraction 25-49%	4 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, O)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	2 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)	2 1 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.5, O)	2 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.1, I)	1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, I)	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.5, I)	(226-234)
3. Ejection fraction <25%	2 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.2, I)	2 1 1 2 2 1 2 3 4 5 6 7 8 9 (5.5, 2.4, O)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.1, A)	2 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.8, I)	2 1 1 3 1 1 2 3 4 5 6 7 8 9 (5.5, 2.2, O)	1 1 3 3 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 2 2 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.9, O)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (3.0, 2.0, I)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	(235-243)
E. TWO VESSEL DISEASE WITHOUT PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. Ejection fraction >50%	1 4 3 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 1 4 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.2, A)	2 1 4 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 1 4 2 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	1 1 3 1 1 1 3 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	1 3 2 2 1 2 3 4 5 6 7 8 9 (2.5, 1.5, I)	1 3 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	(244-252)
2. Ejection fraction 25-49%	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.1, A)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, I)	1 1 4 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 2 3 1 1 2 3 4 5 6 7 8 9 (8.0, 1.9, I)	2 1 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 2 2 1 1 1 3 1 2 2 1 2 3 4 5 6 7 8 9 (5.0, 1.8, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (2.5, 1.6, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.8, I)	(253-261)
3. Ejection fraction <25%	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (7.0, 2.0, I)	1 3 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.9, I)	2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.5, I)	1 2 1 3 1 1 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.6, O)	1 3 1 3 1 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	1 2 2 1 1 1 2 3 2 2 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	1 1 1 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.6, I)	1 1 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 2.0, I)	(262-270)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

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POST MYOCARDIAL INFARCTION	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
F. SINGLE VESSEL DISEASE - PROXIMAL LEFT ANTERIOR DESCENDING										
1. Ejection fraction >50%	1 3 4 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (7.0, 0.8, A)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.5, I)	2 3 3 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 4 2 1 1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	1 3 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	(271-279)
2. Ejection fraction 25-49%	1 4 3 1 2 3 4 5 6 7 8 9 (7.0, 0.5, A)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, O)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	2 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.0, I)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.5, I)	3 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	2 4 1 1 1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.0, A)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 1.5, I)	(280-288)
3. Ejection fraction <25%	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.5, 1.1, I)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (3.5, 1.6, I)	1 2 2 1 4 1 2 3 4 5 6 7 8 9 (8.0, 1.5, I)	2 1 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.2, I)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.2, I)	2 1 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	2 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 2 1 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	(289-297)
G. SINGLE VESSEL DISEASE - ANY VESSEL OTHER THAN FLAD										
a. Ejection fraction >50%	1 2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A)	1 3 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.0, A)	1 1 4 2 1 2 3 4 5 6 7 8 9 (7.0, 1.1, I)	1 2 1 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.6, I)	2 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 1 4 2 1 2 3 4 5 6 7 8 9 (7.0, 1.2, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.5, I)	3 4 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 3 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, I)	(298-306)
b. Ejection fraction 25-49%	1 3 3 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, A)	1 3 3 1 1 2 3 4 5 6 7 8 9 (2.5, 0.9, A)	1 3 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.4, I)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (4.5, 1.6, I)	2 4 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 2 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	3 4 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.8, I)	(307-315)
c. Ejection fraction <25%	2 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.3, I)	1 4 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.7, I)	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, I)	1 1 3 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	3 3 1 1 1 2 3 4 5 6 7 8 9 (2.0, 0.9, I)	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.8, I)	3 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, I)	4 3 1 1 1 2 3 4 5 6 7 8 9 (1.5, 0.9, A)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.8, I)	(316-324)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 4

POST MYOCARDIAL INFARCTION

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
WITHIN 21 DAYS AFTER AMI; PATIENT IS ASYMPTOMATIC - WITH NEGATIVE TO MINIMALLY POSITIVE EXERCISE ECG										
TRANSMURAL (Q-WAVE) OR NON-TRANSMURAL MYOCARDIAL INFARCTION										
A. LEFT MAIN DISEASE										
1. Ejection fraction >50%	2 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A)	2 2 4 1 2 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.5, 0.8, A) (5.0, 1.0, A)		1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.9, A)	1 2 2 3 1 2 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A) (5.0, 1.5, A)		1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 1.9, I)	1 2 1 1 1 2 1 2 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 1.9, I) (5.0, 1.5, A)		(325-333)
2. Ejection fraction 25-49%	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 1 2 4 1 2 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A) (5.0, 1.0, A)		1 2 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.0, A)	1 2 2 3 1 2 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (8.0, 1.1, A) (5.0, 1.5, A)		2 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (6.5, 2.0, D)	2 1 1 1 1 2 1 2 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (6.5, 2.0, I) (5.0, 1.5, A)		(334-342)
3. Ejection fraction <25%	2 2 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I)	2 2 1 3 1 2 5 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.5, 1.4, I) (5.0, 1.0, A)		1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I)	1 1 1 2 1 2 1 2 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (7.0, 1.4, I) (5.0, 1.5, A)		1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 2.6, D)	1 1 1 1 1 1 2 1 2 4 1 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 (5.5, 2.6, D) (5.0, 1.5, A)		(343-351)
C. THREE VESSEL DISEASE										
1. Ejection fraction >50%	2 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.0, I)	4 1 3 1 2 3 4 5 6 7 8 9 (5.5, 0.9, A)	1 2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	2 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 0.8, A)	1 4 1 2 1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.5, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 2 5 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 1 1 4 1 2 3 4 5 6 7 8 9 (6.0, 2.0, O)	(352-360)
2. Ejection fraction 25-49%	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	3 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.0, A)	2 4 1 1 2 3 4 5 6 7 8 9 (7.0, 1.4, A)	2 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.0, I)	1 4 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (6.5, 1.5, A)	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, D)	1 1 2 3 1 1 2 3 4 5 6 7 8 9 (4.5, 1.2, A)	1 1 1 4 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	(361-369)
3. Ejection fraction <25%	1 1 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, I)	5 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	3 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.6, I)	1 1 4 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, I)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	3 1 2 1 1 2 3 4 5 6 7 8 9 (5.5, 1.5, A)	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.9, D)	2 1 2 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.5, I)	1 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.5, D)	(370-378)
D. TWO VESSEL DISEASE WITH PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. Ejection fraction >50%	3 1 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.2, I)	1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	2 3 2 1 1 2 3 4 5 6 7 8 9 (6.0, 0.8, A)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.1, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.5, I)	1 1 1 5 2 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (6.0, 1.8, I)	(379-387)
2. Ejection fraction 25-49%	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.2, I)	1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.4, I)	2 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.0, I)	2 4 2 1 2 3 4 5 6 7 8 9 (6.0, 0.8, I)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.2, A)	2 3 1 2 1 2 3 4 5 6 7 8 9 (6.0, 0.9, I)	1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.5, D)	1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (4.5, 1.5, I)	1 1 2 2 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	(388-396)
3. Ejection fraction <25%	1 1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, I)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, D)	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.2, I)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.5, I)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, D)	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.2, I)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 2.2, D)	2 1 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	1 1 4 2 1 2 3 4 5 6 7 8 9 (5.0, 1.1, I)	(397-405)
E. TWO VESSEL DISEASE WITHOUT PROXIMAL LEFT ANTERIOR DESCENDING INVOLVEMENT										
1. Ejection fraction >50%	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, I)	1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (4.5, 1.4, I)	1 1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (4.5, 1.8, O)	1 2 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (4.0, 1.1, I)	1 2 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	1 2 1 1 1 2 1 2 3 4 5 6 7 8 9 (4.0, 1.6, I)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (3.0, 1.2, I)	1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.4, D)	(406-414)
2. Ejection fraction 25-49%	1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.7, I)	1 1 2 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 1 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, D)	1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	1 2 2 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.4, I)	1 2 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.0, O)	2 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 2.1, I)	1 2 2 2 1 2 3 4 5 6 7 8 9 (4.0, 1.3, I)	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 2.1, D)	(415-423)
3. Ejection fraction <25%	2 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, D)	2 1 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.6, I)	1 1 3 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.5, I)	2 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (3.5, 2.1, D)	2 2 1 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	2 1 1 1 2 1 2 3 4 5 6 7 8 9 (4.5, 2.0, D)	3 1 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 2.1, I)	3 1 1 1 2 1 2 3 4 5 6 7 8 9 (2.5, 1.5, I)	1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (4.5, 2.1, D)	(424-432)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 4

POST MYOCARDIAL INFARCTION

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
F. SINGLE VESSEL DISEASE - PROXIMAL LEFT ANTERIOR DESCENDING	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	1 3 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.9, 1)	1 1 2 1 3 1 2 3 4 5 6 7 8 9 (6.5, 1.8, 0)	1 2 1 3 1 1 2 3 4 5 6 7 8 9 (5.5, 1.8, 1)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.6, D)	3 2 2 1 3 1 2 3 4 5 6 7 8 9 (4.0, 1.9, 1)	3 2 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.4, 1)	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.9, D)	(433-441)
1. Ejection fraction >50%	1 2 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, D)	1 3 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, 1)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.6, D)	1 3 1 2 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, 1)	2 2 1 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.5, 1)	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, D)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	3 2 2 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.2, 1)	1 1 1 2 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.9, D)	(442-450)
2. Ejection fraction 25-49%	2 1 3 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, D)	2 2 1 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, 1)	2 1 1 2 3 4 5 6 7 8 9 (5.5, 2.0, D)	2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.9, D)	3 1 1 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 1 1 1 1 1 2 1 2 3 4 5 6 7 8 9 (5.5, 1.9, D)	3 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, 1)	3 1 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.2, 1)	1 1 2 1 1 2 1 2 3 4 5 6 7 8 9 (4.5, 1.9, D)	(451-459)
G. SINGLE VESSEL DISEASE - ANY VESSEL OTHER THAN PLAD	1 2 1 2 1 1 1 2 3 4 5 6 7 8 9 (3.5, 1.4, I)	3 2 1 2 1 2 3 4 5 6 7 8 9 (2.0, 1.2, I)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.9, D)	2 1 3 1 1 3 3 2 1 2 3 4 5 6 7 8 9 (3.0, 1.6, I)	1 2 3 4 5 6 7 8 9 (2.0, 1.1, I)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.0, D)	4 2 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (1.5, 1.5, 1)	4 2 2 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.2, I)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (6.0, 2.2, D)	(460-468)
a. Ejection fraction >50%	1 2 2 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.1, A)	3 3 1 1 1 1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 1 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.6, I)	2 2 2 1 1 3 3 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.0, D)	4 2 1 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.5, 1)	4 2 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.1, 1)	2 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 2.2, D)	(469-477)
b. Ejection fraction 25-49%	2 3 2 1 1 2 3 4 5 6 7 8 9 (2.0, 1.2, I)	4 2 1 1 1 2 3 4 5 6 7 8 9 (1.5, 1.1, I)	1 1 3 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.8, D)	3 1 2 1 1 4 2 1 1 1 2 3 4 5 6 7 8 9 (2.5, 1.8, I)	1 2 3 4 5 6 7 8 9 (1.5, 1.1, I)	1 1 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 1.9, D)	5 1 1 1 4 2 1 1 1 2 3 4 5 6 7 8 9 (3.0, 1.2, A)	1 2 3 4 5 6 7 8 9 (1.5, 1.1, I)	2 1 2 1 1 1 1 2 3 4 5 6 7 8 9 (4.0, 2.1, D)	(478-486)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 5

ASYMPTOMATIC

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK		
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy
WITH VERY POSITIVE EXERCISE ECG									
A. Left main disease	8	8 2 2 4		8	8 2 2 4		1 5 2	2 3 3 1 2 4 1	
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (1- 9) (5.0, 1.1, A)
2. Ejection fraction <50%	8 1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	8 2 2 4 1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.5, 1)	8 1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	8 2 2 4 1 2 3 4 5 6 7 8 9 (9.0, 0.0, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.5, 1)	2 4 2 1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	3 2 3 1 2 4 1 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (10- 18) (5.0, 1.1, A)
B. Three vessel disease	1 1 2 4	1 2 1 3 1	1 1 4 2	1	1 2 2 2	1 1 2 2 1	1 2 4 1	1 1 3 2 1	1 1 4 1 1 2 1 4 1
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.4, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (7.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.4, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (19- 27) (8.0, 0.8, A)
2. Ejection fraction <50%	3 5 1 1 2 3 1 1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.4, 1)	3 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 2 3 1 1 2 1 2 1 1 2 3 4 5 6 7 8 9 (8.0, 1.4, A)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	4 3 1 1 2 3 4 5 6 7 8 9 (7.5, 0.6, A)	1 1 4 1 1 2 4 1 1 1 2 3 4 5 6 7 8 9 (6.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, 1)	1 3 3 1 1 2 3 4 5 6 7 8 9 (28- 36) (7.5, 0.8, A)
C. Two vessel disease with proximal left anterior descending involvement	1 1 4 2	1 1 1 4 1	1 1 3 3	1 2 1 2 2	1 1 1 1 4	2 1 2 3	1 1 1 3 1 1 2 4 1	1 1 1 3 2	
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.5, D)	1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, 0)	1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (6.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (37- 45) (8.0, 1.1, 1)
2. Ejection fraction <50%	1 5 2 1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.5, D)	3 2 3 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.4, 1)	1 1 3 3 1 2 3 4 5 6 7 8 9 (6.0, 1.2, D)	1 3 1 3 1 2 3 4 5 6 7 8 9 (7.5, 1.0, A)	1 1 1 2 2 1 1 2 1 2 3 4 5 6 7 8 9 (6.0, 1.6, 1)	1 1 3 2 2 1 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, 1)	1 3 2 2 1 2 3 4 5 6 7 8 9 (46- 54) (7.5, 1.1, A)
D. Two vessel disease without proximal left anterior descending involvement	1 1 1 2 3	1 3 3 1	2 2 2 2	1 1 1 2 1 2	2 2 4	3 1 2 2	1 1 1 3 3 1 1 3 3 1	1 3 2 2	
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (7.0, 1.1, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.2, A)	1 2 3 4 5 6 7 8 9 (7.5, 1.0, 1)	1 2 3 4 5 6 7 8 9 (6.0, 1.6, D)	1 2 3 4 5 6 7 8 9 (4.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.1, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (2.5, 0.8, A)	1 2 3 4 5 6 7 8 9 (55- 63) (6.5, 1.5, 1)
2. Ejection fraction <50%	1 2 2 3 1 2 1 3 1 1 3 2 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (4.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 1 1 1 2 2 2 1 1 3 2 2 1 2 3 4 5 6 7 8 9 (6.5, 1.8, D)	2 1 1 3 1 1 2 3 4 5 6 7 8 9 (4.5, 1.4, 1)	2 2 2 1 1 2 3 4 5 6 7 8 9 (7.5, 1.0, 1)	1 1 1 3 3 1 1 1 3 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.5, 1)	1 3 2 2 1 1 2 3 4 5 6 7 8 9 (2.5, 1.0, A)	1 2 3 4 5 6 7 8 9 (64- 72) (7.0, 1.4, 1)
E. Single vessel disease - proximal left anterior descending	1 1 1 5	2 2 3 1	2 4 2	1 1 1 2 3	3 1 1 2 1 3 3 2	1 1 1 1 2 1 1 1 4 2 1	1 3 2 2		
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (8.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.5, A)	1 2 3 4 5 6 7 8 9 (7.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (3.5, 1.4, 1)	1 2 3 4 5 6 7 8 9 (8.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (4.5, 1.9, D)	1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (73- 81) (7.5, 1.1, A)
2. Ejection fraction <50%	1 3 4 2 1 1 3 1 1 2 3 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	1 2 3 4 5 6 7 8 9 (4.5, 1.5, 1)	1 2 3 2 1 2 3 4 5 6 7 8 9 (8.0, 0.8, A)	1 1 1 3 2 2 1 2 2 1 1 2 3 4 5 6 7 8 9 (7.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.1, 1)	1 3 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.9, A)	1 1 2 3 1 1 4 2 1 1 2 3 4 5 6 7 8 9 (4.5, 1.4, A)	1 2 3 4 5 6 7 8 9 (2.0, 0.8, A)	1 1 3 1 2 1 2 3 4 5 6 7 8 9 (82- 90) (7.0, 1.1, 1)
F. Single vessel disease - any vessel other than PLAD	3 1 2 2	2 1 3 1 1	1 2 3 1 1	1 3 2 1 1	2 1 4 1 1	1 2 1 2 1 1	3 2 1 1 1	2 5 1 1	1 2 2 1 1
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (5.5, 1.8, D)	1 2 3 4 5 6 7 8 9 (3.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (7.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (3.5, 2.1, 1)	1 2 3 4 5 6 7 8 9 (3.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (6.0, 1.7, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (2.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (91- 99) (6.0, 2.0, 1)
2. Ejection fraction <50%	1 2 2 1 2 1 1 2 2 1 1 2 3 4 5 6 7 8 9 (5.0, 1.8, D)	1 2 3 4 5 6 7 8 9 (3.0, 1.1, 1)	1 2 3 4 5 6 7 8 9 (7.0, 1.4, 1)	1 3 1 1 1 1 2 1 3 1 1 2 3 4 5 6 7 8 9 (3.0, 2.0, 1)	1 2 3 4 5 6 7 8 9 (3.0, 1.0, 1)	1 2 1 2 1 1 2 3 4 5 6 7 8 9 (6.0, 1.7, 1)	3 2 1 1 1 1 2 5 1 1 2 3 4 5 6 7 8 9 (2.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (2.0, 0.6, A)	1 2 2 1 1 2 3 4 5 6 7 8 9 (100-108) (6.0, 2.0, 1)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 5

ASYMPTOMATIC

	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK			
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	
WITH NEGATIVE TO MINIMALLY POSITIVE EXERCISE ECG										
A. Left main disease	3 5	3 5 2 4 2		1 2 5	1 2 5	2 3 2 1	1 2 1 2 2	3 1 2 2 2 3 2 1		
1. Ejection fraction >-50%	1 2 3 4 5 6 7 8 9 1 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (2.0, 1.9, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (7.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.8, 1)	(109-117)
	3 5	3 5 2 4 2		1 2 5	1 2 5	2 3 2 1	1 2 1 1 1 2	3 1 1 1 2 2 3 2 1		
2. Ejection fraction <50%	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.4, A)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (2.0, 1.9, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (6.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.6, 1)	(118-126)
B. Three vessel disease	1 3 1 2 1 1 1	1 3 2 1 1 4 1 1 1		1 4 2 1 1 3 1 5 1	1 5 1	1 5 1 1	1 1 1 4 1 1 2 5 1	1 2 5 1 1 5 1		
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (5.5, 1.6, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.3, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	(127-135)
	1 4 1 1 1	1 3 2 1 1 3 3 1		1 3 2 2 1	1 5 1 1	1 5 3 1	1 1 1 3 2	2 1 5 1 1 4 1 1		
2. Ejection fraction <50%	1 2 3 4 5 6 7 8 9 (6.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (5.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (6.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)	1 2 3 4 5 6 7 8 9 (5.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	(136-144)
C. Two vessel disease with proximal left anterior descending involvement	3 1 1 1 1	1 2 1 1 2 1 1		2 3 2 1 2 2 1 2 1	1 3 1 2 1	1 3 1 2 1 1 1 6 1				
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (4.5, 2.0, 1)	1 2 3 4 5 6 7 8 9 (3.5, 1.8, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.8, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.8, 1)	1 2 3 4 5 6 7 8 9 (3.0, 1.8, 1)	1 2 3 4 5 6 7 8 9 (4.5, 1.5, A)	1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, A)	(145-153)
	2 1 2 2 1 3 1	2 4 1 1 1 3 1 2 1		1 4 1 1 1 2 3 2 1	1 4 1 1 3	2 1 1 1 2 1	4 1 3 1 1 1 5 1			
2. Ejection fraction <50%	1 2 3 4 5 6 7 8 9 (6.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.1, A)	1 2 3 4 5 6 7 8 9 (5.0, 1.3, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (3.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (5.0, 1.0, A)	(154-162)
D. Two vessel disease without proximal left anterior descending involvement	2 2 2 1 1	2 3 1 1 1 2 1 1 1		3 1 2 1 1 4 2 1 1	2 3 1 1	3 1 2 1 1 2 2 3 1				
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (4.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (3.0, 2.0, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.1, 1)	1 2 3 4 5 6 7 8 9 (4.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (2.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (0.5, 0.8, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.9, 1)	(163-171)
	2 2 1 2	1 2 3 1 1 1 2 1 1 1		3 1 1 2 1 1 4 2 1 1	2 3 1 1	3 1 2 1 1 5 1 2				
2. Ejection fraction <50%	1 2 3 4 5 6 7 8 9 (3.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, 1)	1 2 3 4 5 6 7 8 9 (4.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (3.0, 2.1, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.1, 1)	1 2 3 4 5 6 7 8 9 (4.5, 1.5, 1)	1 2 3 4 5 6 7 8 9 (2.5, 1.4, 1)	1 2 3 4 5 6 7 8 9 (1.0, 0.6, A)	1 2 3 4 5 6 7 8 9 (4.0, 1.8, 1)	(172-180)
E. Single vessel disease - proximal left anterior descending	2 1 2 1 2	3 2 1 1 1 2 2 1 2		2 1 2 2 1 3 2 1 1 1	1 3 2 1	3 1 1 1 1 1 2 2 1				
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (3.0, 2.4, 0)	1 2 3 4 5 6 7 8 9 (2.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (4.0, 2.0, 0)	1 2 3 4 5 6 7 8 9 (3.0, 1.9, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.4, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.5, 1)	1 2 3 4 5 6 7 8 9 (2.5, 1.8, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.7, 1)	(181-189)
	1 1 2 1 1 2 2 1 2	2 2 1 2 1 3 2 1 1		1 1 2 2 1 3 2 1 1	1 3 2 1 1	3 1 1 1 1 1 4 1 2 1				
2. Ejection fraction <50%	1 2 3 4 5 6 7 8 9 (4.0, 2.2, 0)	1 2 3 4 5 6 7 8 9 (2.5, 1.9, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.9, 0)	1 2 3 4 5 6 7 8 9 (4.0, 1.8, 1)	1 2 3 4 5 6 7 8 9 (2.5, 1.8, 1)	1 2 3 4 5 6 7 8 9 (4.0, 1.2, 1)	1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.6, 1)	(190-198)
F. Single vessel disease - any vessel other than PLAD	3 3 2 1 1	3 2 2 1 1 2 1 1 1 1		4 3 3 1 1 3 3 1 1	3 2 1 1 1	4 2 1 1 3 3 1 1				
1. Ejection fraction >=50%	1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.9, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.5, A)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.8, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.2, A)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (1.0, 1.9, 1)	(199-207)
	3 1 2 1 1	3 2 2 1 1 2 1 1 1 1		4 3 3 1 1 3 3 1 1	3 2 1 1 1	4 2 1 1 5 1 1 1				
2. Ejection fraction <50%	1 2 3 4 5 6 7 8 9 (2.5, 1.6, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.0, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.9, 1)	1 2 3 4 5 6 7 8 9 (2.0, 1.5, A)	1 2 3 4 5 6 7 8 9 (2.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (3.0, 1.6, 1)	1 2 3 4 5 6 7 8 9 (1.5, 1.1, A)	1 2 3 4 5 6 7 8 9 (1.0, 0.9, A)	1 2 3 4 5 6 7 8 9 (1.0, 1.6, 1)	(208-216)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 6

NEAR SUDDEN DEATH	NORMAL OR LOW RISK			MODERATELY HIGH RISK			VERY HIGH RISK		
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt IS candidate for PTCA	Appropriateness of PTCA, compared to medical therapy
WITHOUT TRANSMURAL MYOCARDIAL INFARCTION; WITH ANY ISCHEMIA, ANY ANATOMY, ANY EJECTION FRACTION	2 6 1 2 3 4 5 6 7 8 9 (9.0, 0.2, A)	2 3 1 2 3 4 5 6 7 8 9 (7.0, 0.9, I)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	2 1 5 1 2 3 4 5 6 7 8 9 (9.0, 0.6, A)	3 3 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)	1 2 5 1 2 3 4 5 6 7 8 9 (9.0, 0.5, A)	4 2 2 1 2 3 4 5 6 7 8 9 (7.5, 0.8, A)	2 3 1 2 1 2 3 4 5 6 7 8 9 (5.0, 1.1, D)	2 3 3 1 2 3 4 5 6 7 8 9 (1- 9) (8.0, 0.6, A)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 8

CORONARY REVASCULARIZATION WITH VALVE SURGERY

	NORMAL OR LOW RISK	MODERATELY HIGH RISK	VERY HIGH RISK
	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt NOT candidate for PTCA	Appropriateness of CABG, Pt NOT candidate for PTCA
ANY ISCHEMIC ANATOMY, ANY EJECTION FRACTION	3 5 1 2 3 4 5 6 7 8 9 (3.0, 0.4, A)	1 3 4 1 2 3 4 5 6 7 8 9 (8.5, 0.9, A)	1 2 3 1 1 1 2 3 4 5 6 7 8 9 (7.0, 1.1, A) (1- 3)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 9	VERY HIGH RISK		
PATIENT HAS SUFFICIENT COMORBIDITIES THAT ME/SHE WOULD NOT BE CONSIDERED A CANDIDATE FOR BYPASS SURGERY IN THE EVENT OF PTCA FAILURE (INCLUDING A MAJOR ACUTE COMPLICATION)	Appropriateness of PTCA, compared to medical therapy		
CHRONIC STABLE ANGINA--SEVERE (CLASS III-IV), UNCONTROLLED ON MAXIMUM MEDICAL THERAPY			
A. Left main disease	1 6 1 1 2 3 4 5 6 7 8 9 (5.0, 0.5, A)		(1)
B. Three vessel disease	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.2, I)		(2)
C. Two vessel disease	1 1 3 1 2 1 2 3 4 5 6 7 8 9 (7.0, 1.0, I)		(3)
D. Single vessel disease	1 1 1 3 2 1 2 3 4 5 6 7 8 9 (8.0, 1.0, I)		(4)
UNSTABLE ANGINA (NOT FOLLOWING MYOCARDIAL INFARCTION), UNCONTROLLED ON MAXIMUM MEDICAL THERAPY			
A. Left main disease	1 5 1 1 1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)		(5)
B. Three vessel disease	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.2, I)		(6)
C. Two vessel disease	1 1 1 1 4 1 2 3 4 5 6 7 8 9 (8.5, 1.2, I)		(7)
D. Single vessel disease	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 1.1, I)		(8)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

Chapter 9 PATIENT HAS SUFFICIENT COMORBIDITIES THAT HE/SHE WOULD NOT BE CONSIDERED A CANDIDATE FOR BYPASS SURGERY IN THE EVENT OF PTCA FAILURE (INCLUDING A MAJOR ACUTE COMPLICATION)	VERY HIGH RISK Appropriateness of PTCA, compared to medical therapy			
ACUTE MYOCARDIAL INFARCTION				
A. CARDIOGENIC SHOCK				
1. Left main disease	1 1 3 3 1 2 3 4 5 6 7 8 9 (5.0, 1.4, 0)			(9)
2. Three vessel disease	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (7.0, 1.5, 1)			(10)
3. Two vessel disease	1 1 1 1 3 1 1 2 3 4 5 6 7 8 9 (7.5, 1.8, 1)			(11)
4. Single vessel disease	1 1 1 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.9, 1)			(12)
B. EVOLVING MYOCARDIAL INFARCTION, PAIN UNCONTROLLED ON MAXIMUM MEDICAL THERAPY				
1. Left main disease	1 4 3 1 2 3 4 5 6 7 8 9 (5.0, 0.8, A)			(13)
2. Three vessel disease	1 2 1 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.6, 1)			(14)
3. Two vessel disease	1 1 2 2 2 1 2 3 4 5 6 7 8 9 (7.5, 1.5, 1)			(15)
4. Single vessel disease	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.5, 1)			(16)
POST MYOCARDIAL INFARCTION (WITHIN 21 DAYS), PAIN UNCONTROLLED ON MAXIMUM MEDICAL THERAPY				
A. Left main disease	1 4 2 1 1 2 3 4 5 6 7 8 9 (5.0, 0.9, A)			(17)
B. Three vessel disease	1 1 1 2 3 1 2 3 4 5 6 7 8 9 (8.0, 1.5, 1)			(18)
C. Two vessel disease	1 1 2 4 1 2 3 4 5 6 7 8 9 (8.5, 1.5, 1)			(19)
D. Single vessel disease	1 1 1 5 1 2 3 4 5 6 7 8 9 (9.0, 1.4, 1)			(20)

Appropriateness scale: 1 = extremely inappropriate, 5 = equivocal, 9 = extremely appropriate

APPENDICES TO CHAPTER 9

APPENDIX 9

QUANTITATIVE ANGIOGRAPHY PROCEDURE AND DEFINITIONS

APPENDIX 9

QUANTITATIVE ANGIOGRAPHY PROCEDURES AND DEFINITIONS

Projection and Frame Selection

High quality angiographic projections minimize vessel foreshortening, minimize vessel overlap, and minimize motion blur. The following angiographic projections were given preference.

Left main: the anterior/posterior projection or the RAO caudal view.

Left anterior descending artery: the RAO cranial projection secondary views included the LAO cranial and the left lateral view.

Circumflex and Obtuse Marginals: the RAO caudal or LAO caudal projections.

Proximal RCA: the LAO straight projection.

Mid-RCA: the RAO straight projection or lateral projection.

PDA and Posterolateral: the AP cranial projection.

Reference was given to end-diastolic frames in the analysis, but occasionally other frames were used to minimize vessel overlap, motion blur, or foreshortening. The end-diastolic frame is defined as the frame that immediately precedes the first systolic motion of the heart. A uniform phase of the cardiac cycle is analyzed because of the large frame-to-frame variability in a cineangiogram (1).

Definitions of Segmental Coronary Anatomy

The coronary anatomy is divided into the following defined segments:

Left main (LM): extends from the origin of the left coronary artery to the bifurcation into the left anterior descending and circumflex arteries.

Proximal left anterior descending artery (L1): extends from the bifurcation of the left main coronary artery to the origin of the first diagonal.

Mid left anterior descending artery (L2): extends from the origin of the first diagonal artery to the origin of the third diagonal artery.

Distal left anterior descending artery (L3): extends from the origin of the third diagonal to the termination of the left anterior descending artery. If there is no third diagonal branch, the left anterior descending artery can be divided into three equal portions.

First diagonal artery (D1): the first branch off of the left anterior descending artery which supplies the anterolateral wall of the left ventricle.

Second diagonal artery (D2): the second branch off of the left anterior descending artery which supplies the anterolateral wall of the left ventricle. In an RAO projection, this artery often arises where the left anterior descending angles toward the apex.

First septal artery (S1): the first branch off of the left anterior descending supplying the septum. Originates in either the proximal or the mid left anterior descending artery.

Second septal artery (S2): the second branch off the left anterior descending supplying the septum. Usually originates in the mid left anterior descending artery.

Intermedius (I): an artery whose origin bisects the origins of both the left anterior descending artery and the circumflex artery. When an intermedius branch is present, the left main will be seen to trifurcate in the LAO caudal projection, and the intermedius artery is the middle artery at this point of trifurcation.

Proximal circumflex artery (C1): extends from the origin of the circumflex off of the left main to the origin of the first obtuse marginal branch.

Mid circumflex artery (C2): extends from the origin of the first obtuse marginal to the origin of the second obtuse marginal. If there is no second obtuse marginal branch, this is the first half of the circumflex artery extending past the origin of the first obtuse marginal.

Distal circumflex artery (C3): extends from the origin of the second obtuse marginal to the termination of the circumflex artery. If there is no second obtuse marginal artery, this is the distal half of the circumflex artery after the origin of the first obtuse marginal.

First obtuse marginal artery (OM1): the first branch off of the circumflex artery supplying the lateral wall of the left ventricle.

Second obtuse marginal artery (OM2): the second branch off of the circumflex artery supplying the lateral wall of the left ventricle.

Third obtuse marginal artery (OM3): the third branch off of the circumflex artery supplying the lateral wall of the left ventricle.

Left posterolateral artery (LPL): in left dominant or balanced systems this is the distal continuation of the circumflex artery. It originates before the left posterior descending artery.

Left posterior descending artery (LPDA): in left dominant or balanced systems this is the distal continuation of the left circumflex artery supplying septal perforators the base of the heart. This branch is distal to the origin of the left posterolateral, and lies to the observers left of the posterolateral branch in the LAO caudal projection.

Proximal right coronary artery (R1): extends from the ostium of the right coronary artery to the RV branch. If the RV branch is not apparent, then this is one half of the distance to the acute marginal branch.

Mid right coronary artery (R2): extends from the origin of the RV branch to the origin of the acute marginal. Alternatively, if the right coronary branch is

not obvious, this is the second half of the distance from the origin of the right coronary artery to the origin of the acute marginal branch.

Distal right coronary artery (R3): extends from the origin of the acute marginal to the origin of the posterior descending artery.

Right posterior descending artery (RPDA): in right dominant or codominant systems, this vessel runs in the posterior interventricular groove and supplies septal perforator branches.

Right posterolateral artery (RPL): this is the distal continuation of the right coronary artery after the origin of the posterior descending artery. It often has an inverted U shape as described by James. The AV nodal branch originates from this artery.

Right ventricular artery: (RV): arises from the right coronary artery approximately half way to the acute margin of the RV.

Acute marginal (AM): artery originating at the acute margin of the heart distal to the RV branch.

In the case of redo bypass surgery, the following definitions apply:

Saphenous Vein Graft to the LAD: (SVGLAD)

Saphenous Vein Graft to Circumflex: (SVGCX)

Saphenous Vein Graft to the Right Coronary Artery: (SVGRCA)

Saphenous Vein Graft to the PDA: (SVGPDA)

Saphenous Vein Graft to the Obtuse Marginal: (SVGOM)

Saphenous Vein Graft to Diagonal: (SVGD1)

Left Internal Mammary Artery to the Left anterior descending artery: (LIMA)

Flow Grade Assessment

The flow down arteries analyzed using quantitative angiography will be graded as follows:

CNA: If the flow cannot be assessed or is not available, then CNA (cannot assess) is circled. The grade flow is assessed using the following criteria:

Grade 0: No perfusion. There is no antegrade flow beyond the point of occlusion.

Grade 1: Penetration without perfusion. The contrast material passes beyond the area of obstruction but "hangs up" and fails to opacify the entire coronary bed distal to the obstruction for the duration of the cineangiographic filming sequence.

Grade 2: Partial perfusion. The contrast passes across the obstruction and opacifies the coronary bed distal to the obstruction. However, the rate of entry of contrast material into the vessel distal to the obstruction or its rate of clearance from the distal bed (or both) are perceptibly slower than its entry into or clearance from comparable areas not perfused by the previous occluded vessel-e.g., the opposite coronary artery or the bed proximal to the obstruction. This flow grade is divided into 2 "Fast" (minimal delay, approximately 60 frames to opacify the vessel) or 2 "Slow" (severely delayed, requires approximately 100 frames to opacify the vessel).

Grade 3: Complete perfusion. Antegrade flow into the bed distal to the obstruction occurs as promptly as antegrade flow into the bed proximal to the obstruction, and clearance of contrast material from the involved bed as rapid as clearance from an uninvolved bed in the same vessel or the opposite artery.

Caveats Regarding The Assessment of Flow Grade

1. If there is distal embolization of thrombotic material with no flow down the artery and an abrupt cutoff exists, then the flow is graded as 0. This is the case even if the artery is patent at the site of the original culprit.

2. In cases where the culprit artery is located at a branchpoint, the slowest flow down either branch is graded. For instance, while the LAD may have TIMI grade 2 flow, if a diagonal involved with thrombus has TIMI grade 1 flow, then the flow is graded as TIMI grade 1.

3. If the flow changes over the course of several injections performed at a given timepoint, then the slowest flow is used. The act of injection itself may promote clot dissolution, and, therefore, the injection in which flow is slowest is used.

Assessment of Collateral Circulation

The presence of collateral circulation will be graded as in previous TIMI studies:

Grade 0: No collaterals present, angiography fails to reveal evidence of collateral vessels.

Grade 1: Minimal collaterals present, evidence of minimal to partial filling of the recipient artery.

Grade 2: Well-developed collaterals. Evidence of collateral circulation with near to complete filling of the recipient artery.

Quantitation Angiography Analysis

The cineframes were optically magnified by a factor of 3. Cinefilm images were digitized as 512 X 512 X 8 bits using a digitizer interfaced to a the computer providing a spatial resolution in the imagefield of 6 to 8 pixels per millimeter. An approximation of the centerline of the arterial segment was provided by the operator, and a preliminary estimate of the arterial border was made. A series of 256 grey scale densitometric profiles characterizing the intensity

of pixels aligned or onthogonal to this centerline were generated at each pixel (representing a distance of approximately .12 to .16 millimeters) along the length of the artery in a second iteration. A fifth degree polynomial was fit to the left and the right sides of each densitometric profile, and the edge of the vessel was defined as the inflection point or the zero value of the second derivative of this expression. A second determination of the centerline was recalculated based upon this estimate of the refined vessel edge. A third iteration of the vessel border calculation was then performed based on this refined centerline.

At every pixel along the length of the vessel, the arterial diameter was calculated. The minimum arterial diameter is defined as the minimum value of a polynomial fit to the five consecutive diameters adjacent to the smallest single diameter estimate in a region of interest. The "normal" reference arterial segment diameter was defined as the average arterial diameter was defined as the average arterial diameter operator-selected portion of the vessel that appeared normal angiographically either proximal or distal to the lesion.

Data were invoiced in a paper format and placed in an Excel spreadsheet.

APPENDIX 9

ANGIOGRAPHIC CORE LABORATORY READING FORM

ANGIOGRAPHIC CORE LABORATORY READING FORM

Film Code #: Film Analysis Date: / /

Angiographic Study Quality: *Excellent* *Good* *Average* *Poor* *Uninterpretable*

Redo: *Y* *N* Catheter Size: 6F 7F 8F BSA:

Dominance: *Right* *Left* *Codominant*

Left Main:

Reference Diameter: MLD: % Stenosis: Average Diameter:

Bypassed: *Y* *N* Isolated LM: *Y* *N* Ostial: *Y* *N* Visual % Stenosis

Left Anterior Descending Artery System:

	Prox. LAD	Mid LAD	Distal LAD	1st Diagonal	2cd Diagonal	Ramus	S1	S2	SVG	None
Tightest Lesion										
Bypassed										
Ref. Diam										
Min. Diam										
% Stenosis										
Ave. Diam.										
Discontinuous										
Collaterals										
Thrombus										
Visual % St.										

TIMI grade flow: *0* *1* *2S* *2F* *3* *CNA* Average Vessel Diameter:

Circumflex Artery System:

Film Code Number:

	Prox. Cx	Mid Cx	Distal Cx	OM1	OM2	OM3	LPDA	LPL	SVG	None
Tightest Lesion										
Bypassed										
Ref. Diam.										
Min. Diam.										
% Stenosis										
Ave. Diam.										
Discontinuous										
Collaterals										
Thrombus										
Visual % St.										

TIMI grade flow: *0* *1* *2S* *2F* *3* *CNA* Average Vessel Diameter:

Right Coronary Artery System:

Film Code Number:

	Prox. RCA	Mid RCA	Dist. RCA	AM1	AM2	RPDA	RPL	SVG	None
Tightest Lesion									
Bypassed									
Ref. Diam.									
Min. Diam.									
% Stenosis									
Ave. Diam.									
Discontinuous									
Collaterals									
Thrombus									
Visual % St.									

TIMI grade flow. *0* *1* *2S* *2F* *3* *CNA* Average Vessel Diameter:

Operations Manual For The Comparative Study of Computerized Versus Visual Analyses of Coronary Arteriograms Prior to Coronary Artery Bypass Grafting

C. Michael Gibson, M.S., M.D.

Objectives:

1. To determine the percent stenosis, the minimum lumen diameter, and the "normal" reference diameter of arteries that are to undergo CABG using validated automated edge detection.

2. To determine if these measurements are equally distributed among participating institutions and to compare the quantitative angiographic estimates of percent diameter narrowing with those provided by participating centers.

3. To determine if there is a relationship between the measurements of vessel size and percent diameter stenosis with subsequent adverse outcomes. This analysis would be performed with and without adjustment for BSA, the number and location of bypassed vessels, and other epidemiologic covariates such as age and sex to determine if these measurements had independent predictive value for an adverse outcome.

4. To examine vessels that did not undergo bypass surgery, and determine the vessel size and percent diameter stenosis of these vessels.

5. To determine the feasibility of routinely using quantitative angiography in the preoperative evaluation of cinefilms.

Methods:

Facilities: The West Roxbury Veterans Administration Hospital Angiographic Core Laboratory:

The Angiographic Core Laboratory has been in continuous operation since 1991. The angiographic core facility is dedicated to providing accurate and precise data in a timely fashion regarding the qualitative analysis of cinefilms such as TIMI grade flow or lesion morphology and quantitative analyses such as the absolute dimensions of arteries. The facility has an exceptional track record of collaboration in multicenter studies. With over 2,400 lesions analyzed from cinefilms sent from Canada and the United states, no cinefilms have ever been lost in any collaborative study to date.

The Angiographic Core Laboratory occupies approximately 300 square feet of dedicated space within the Division of Cardiology at the West Roxbury Veterans Administration Hospital. Adequate space is present for the storage of 500 cineangiograms within the Angiographic Core Laboratory. Films in the Angiographic Core Laboratory are not mixed with films for clinical use.

Personnel:

The Director of the Angiographic Core Laboratory is Dr. C. Michael Gibson M.S.,M.D. who has served in the past as the Director of the TIMI 4 Angiographic Core Laboratory and as the Director of the Angiographic Core Laboratory for the Harvard Atherosclerosis Reversibility Project (HARP) (1-14). Studies assessing the mechanisms of restenosis have also been conducted in the laboratory (1-14) The laboratory is staffed by one full-time technician and cardiology fellows who will perform the initial quantitative and qualitative angiographic analysis

of all incoming films. Films received in the Angiographic Core Laboratory will undergo initial review by the Angiographic Core Laboratory Technician, who will be responsible for unpacking films, invoicing the films arrival, and recording the initial readings on an Angiographic Core Laboratory Worksheet. Once a preliminary reading has been performed, the films will be overread by the Angiographic Core Laboratory Director or Associate Director.

Equipment:

The angiographic core laboratory contains a SONY SME3500 projector capable of fourfold optical magnification of cineframes which will be used for viewing and digitization of images in the study. The cinefilms will be analyzed using a DEC 5500 workstation.

Procedures for Film Handling and Blinding:

Cineangiograms, cardiac catheterization report forms and surgical reports will be submitted to the Angiographic Core Laboratory at the West Roxbury Veterans Administration Hospital, Boston MA. All cinefilm reviewers will be blinded to the identity of the institution submitting the cinefilm and the clinical outcome of the patient.

Films will be submitted in batches to the angiographic core center by an independent consulting firm, Health Economics Research. Upon film arrival at the angiographic core center, a technician who does *not* perform the quantitative angiographic analysis will remove identifying information including the patient and the submitting center name from the cinefilm. The cinefilm and the detached leader strip will both be labeled with the same randomly selected identifying code number using a black magic marker. This will eliminate any potential for bias with respect to the identity of the submitting clinical centers. The technician will review the

cardiac catheterization and operative report from the submitting center and will identify and record the location of the most critical stenosis in each epicardial artery that was bypassed as defined below. The quantitative angiographer (a physician) will then analyze the cinefilm based upon this identification of the critical bypassed lesions provided by the technician. In this way it will be assured that the quantitative angiographer is analyzing the same lesions as were bypassed by the submitting center.

Policy for film return:

In the event of an emergency, the films can be returned to the submitting clinical center by overnight mail.

Projection Selection

The cineangiograms will be initially reviewed in toto to obtain an overview of the patient's coronary anatomy and extent of coronary artery disease. A high quality angiographic projection minimizes vessel foreshortening, minimizes vessel overlap, and minimizes motion blur. The following angiographic projections are in general of high quality, and will be given preference when selecting the frames for analysis:

Left main: The anterior/posterior projection.

Left anterior descending artery: The RAO cranial projection is preferred. Secondary views include the LAO cranial and the left lateral view.

Circumflex and Obtuse Marginals: The LAO caudal or the RAO caudal projections.

Proximal RCA: The LAO straight projection.

Mid-RCA: The RAO straight projection or lateral projection.

PDA and Posterolateral: The AP cranial projection.

Frame Selection:

Once it is determined which single plane angiographic projection shows the lesion in its tightest dimension and is of the highest quality, an end diastolic frame will then be chosen for analysis. Occasionally frames other than end-diastole may be chosen as a result of vessel overlap, motion blur or foreshortening. The end-diastolic frame is defined here as that frame immediately preceding the first systolic motion of the heart. A uniform phase of the cardiac cycle is analyzed because of the large frame-to-frame variability in a cineangiogram (1).

Data intake form:

Film code: Unique random digit assigned to each patient. Range 1-120.

Film analysis date: Date that quantitative angiography was performed.

Angiographic study quality:

1. Uninterpretable:

The primary endpoint cannot be analyzed secondary to exceedingly poor film exposure or quality (i.e. no images on the film, inadequate injection of contrast material, etc.).

2. Poor:

The primary endpoint can be analyzed but the film quality is poor secondary to under or overexposure, poor panning, poor engagement, poor contrast injection, excess collimation, partial obscuration by diaphragm. The distinction between TIMI grade one and two flow is hard or impossible to make because the cinefilming is of inadequate duration to make the distinction.

3. Average:

Adequate film quality. In some, but not all views, distal panning is adequate to assess TIMI flow grade.

4. Good:

Good film quality. During most injections there is adequate panning to assess flow to the distal vasculature and collaterals if present.

5. Excellent:

Excellent film quality. There is adequate panning to assess flow to the distal vasculature of the infarct-related artery and collaterals if present. Dye is not injected prior to the beginning of the cinefilming.

Redo: yes specifies that the patient has previously undergone bypass surgery.

Catheter size:

Size of the catheter used in the procedure. Ascertained from the cardiac catheterization report. 6F=2.0 mm, 7F=2.3 mm and 8F=2.7 mm.

BSA: Body surface area ascertained from the cardiac catheterization report.

Dominance of the coronary tree: based upon the arterial system that supplies the posterior descending artery. Either right, left, or codominant.

Left main: reference diameter in mm, minimum diameter in mm, % stenosis, average diameter in mm all by quantitative angiography (for a description of this method, see below).

Left main bypassed: yes or no answer. If yes, this means that either an isolated left main lesion was bypassed, or that the left main was an "innocent bystander" as the LAD or circumflex were bypassed.

Isolated left main: yes or no response. Yes means that CABG was performed for an isolated left main lesion, and there were no significant stenoses in the LAD or Cx (i.e. less than 50% visual stenoses in the LAD and the Cx).

Left main ostial: Yes no response. Ostial means the blockage occurred within 1 mm of the origin of the artery from the aorta.

Left main visual % stenosis: Core laboratory visual reading of percent stenosis/ clinical center's reading. Range 0-100%. The word nl means 0%.

Definitions of Segmental Coronary Anatomy:

The coronary anatomy is divided into the following defined segments for identification of the bypassed artery:

Left main (LM): Extends from the origin of the left coronary artery to the bifurcation into the left anterior descending and circumflex arteries.

Proximal left anterior descending artery (L1): Extends from the bifurcation of the left main coronary artery to the origin of the first diagonal.

Mid left anterior descending artery (L2): Extends from the origin of the first diagonal artery to the origin of the third diagonal artery.

Distal left anterior descending artery (L3): Extends from the origin of the third diagonal to the termination of the left anterior descending artery. If there is no third diagonal branch, then the left anterior descending artery can be divided into three equal portions.

First diagonal artery (D1): The first branch off of the left anterior descending artery which supplies the anterolateral wall of the left ventricle.

Second diagonal artery (D2): The second branch off of the left anterior descending artery which supplies the anterolateral wall of the left ventricle. In an RAO projection, this artery often arises where the left anterior descending angles toward the apex.

First septal artery (S1): The first branch off of the left anterior descending supplying the septum. Originates in either the proximal or the mid left anterior descending artery.

Second septal artery (S2): The second branch off of the left anterior descending supplying the septum. Usually originates in the mid left anterior descending artery.

Intermedius (I): An artery whose origin bisects the origins of both the left anterior descending artery and the circumflex artery. When an intermedius branch is present, the left main will be seen to trifurcate in the LAO caudal projection, and the intermedius artery is the middle artery at this point of trifurcation.

Proximal circumflex artery (C1): Extends from the origin of the circumflex off of the left main to the origin of the first obtuse marginal branch.

Mid circumflex artery (C2): Extends from the origin of the first obtuse marginal to the origin of the second obtuse marginal. If there is no second obtuse marginal branch, then this is the first half of the circumflex artery extending past the origin of the first obtuse marginal.

Distal circumflex artery (C3): Extends from the origin of the second obtuse marginal to the termination of the circumflex artery. If there is no second obtuse marginal artery, then this is the distal half of the circumflex artery after the origin of the first obtuse marginal.

First obtuse marginal artery (OM1): The first branch off of the circumflex artery supplying the lateral wall of the left ventricle.

Second obtuse marginal artery (OM2): The second branch off of the circumflex artery supplying the lateral wall of the left ventricle.

Third obtuse marginal artery (OM3): The third branch off of the circumflex artery supplying the lateral wall of the left ventricle.

Left posterolateral artery (LPL): In left dominant or balanced systems this is the distal continuation of the circumflex artery. It originates before the left posterior descending artery.

Left posterior descending artery (LPDA): In left dominant or balanced systems this is the distal continuation of the left circumflex artery supplying septal perforators the base of the heart. This branch is distal to the origin of the left posterolateral, and lies to the observers left of the posterolateral branch in the LAO caudal projection.

Proximal right coronary artery (R1): Extends from the ostium of the right coronary artery to the RV branch. If the RV branch is not apparent, then this is one half of the distance to the acute marginal branch.

Mid right coronary artery (R2): Extends from the origin of the RV branch to the origin of the acute marginal. Alternatively, if the right coronary branch is not obvious, this is the second half of the distance from the origin of the right coronary artery to the origin of the acute marginal branch.

Distal right coronary artery (R3): Extends from the origin of the acute marginal to the origin of the posterior descending artery.

Right posterior descending artery (RPDA): In right dominant or codominant systems, this vessel runs in the posterior interventricular groove and supplies septal perforator branches.

Right posterolateral artery (RPL): This is the distal continuation of the right coronary artery after the origin of the posterior descending artery. It often has an inverted U shape as described by James. The AV nodal branch originates from this artery.

Right ventricular artery: (RV): Arises from the right coronary artery approximately half way to the acute margin of the RV.

Acute marginal (AM): Artery originating at the acute margin of the heart distal to the RV branch.

Saphenous Vein Graft to the LAD: (SVGLAD)

Saphenous Vein Graft to Circumflex: (SVGCX)

Saphenous Vein Graft to the Right Coronary Artery: (SVGRCA)

Saphenous Vein Graft to the PDA: (SVGPDA)

Saphenous Vein Graft to the Obtuse Marginal: (SVGOM)

Saphenous Vein Graft to Diagonal: (SVGD1)

Left Internal Mammary Artery to the Left anterior descending artery: (LIMA)

Tightest lesion: Will be checked off if the lesion was the tightest lesion in the coronary circulation. There may be situations where a lesion was bypassed, but it was not the tightest lesion in the LAD, cx or RCA system.

Bypassed: yes or no. We did analyze the tightest lesion in each artery whether it was bypassed or not. This will give us valuable information about arteries that were not bypassed.

Reference diameter, minimum diameter, % stenosis and average diameter: These measurements were determined by quantitative angiography. The artery to be bypassed was ascertained by review of the cardiac catheterization report, the surgical report, and the submitted cinefilm. The most severely narrowed lesion in the epicardial artery that was to undergo bypass surgery was then analyzed by quantitative angiography. If there were several epicardial stenoses with the same visual percent diameter stenosis, then the lesion analyzed was the one with the smallest minimum lumen diameter. From multiple views obtained at cardiac catheterization, the optimal single projection was selected that identified the bypassed stenosis in its greatest severity without foreshortening or overlapping branches. An end-diastolic frame was chosen for quantitative angiographic analysis. A previously described and validated automated edge detection algorithm was utilized (1). The cineframes were optically magnified by a factor of 3. The cinefilm images were digitized as 512 X 512 X 8 bits using a digitizer interfaced to a midframe computer (Digital Electronic Computers Model 5500, Maynard MA) providing a spatial resolution in the imagefield of 6 to 8 pixels per mm. An approximation of the centerline of the arterial segment was provided by the operator, and a preliminary estimate of the arterial border was then made. A series of 256 grey scale densitometric profiles characterizing the intensity of pixels aligned orthogonal to this centerline were generated at each pixel (representing a distance of approximately .12 to .16 mm) along the length of the artery in a second iteration. A fifth degree polynomial was fit to the left and the right sides of each densitometric profile, and the edge of the vessel was defined as the inflection point or the zero value of the second derivative of this expression. A second determination of the centerline was recalculated based upon this estimate of the refined vessel edge. A third iteration of the vessel border calculation was then performed based on this refined centerline.

At every pixel along the length of the vessel, the arterial diameter was calculated as above. The minimum arterial diameter was defined to be the minimum value of a polynomial fit to the five consecutive diameters adjacent to the smallest single diameter estimate in a region of interest. The "normal" reference arterial segment diameter was defined as the average arterial diameter of an operator selected portion of the vessel which appeared normal angiographically either proximal or distal to the lesion. Results are reported in mm.

Discontinuous: During a portion of the cardiac cycle, there was no dye in the lumen. Often corresponds to a visual reading of 99% stenosis.

Collateral Circulation:

The presence of collateral circulation will be graded as in previous TIMI studies:

Grade 0: No collaterals present, angiography fails to reveal evidence of collateral vessels.

Grade 1: Minimal collaterals present, evidence of minimal to partial filling of the recipient artery.

Grade 2: Well-developed collaterals. Evidence of collateral circulation with near to complete filling of the recipient artery.

TIMI Flow Grade Assessment:

CNA: If the flow cannot be assessed or is not available, then CNA (cannot assess) is circled. The TIMI grade flow is assessed using the following criteria:

Grade 0: No perfusion. There is no antegrade flow beyond the point of occlusion.

Grade 1: Penetration without perfusion. The contrast material passes beyond the area of obstruction but "hangs up" and fails to opacify the entire coronary bed distal to the obstruction for the duration of the cineangiographic filming sequence.

Grade 2: Partial perfusion. The contrast passes across the obstruction and opacifies the coronary bed distal to the obstruction. However, the rate of entry of contrast material into the vessel distal to the obstruction or its rate of clearance from the distal bed (or both) are perceptibly slower than its entry into or clearance from comparable areas not perfused by the previous occluded vessel- e.g., the opposite coronary artery or the bed proximal to the obstruction.

Grade 3: Complete perfusion. Antegrade flow into the bed distal to the obstruction occurs as promptly as antegrade flow into the bed proximal to the obstruction, and clearance of contrast material from the involved bed as rapid as clearance from an uninvolved bed in the same vessel or the opposite artery.

Caveats regarding the assessment of TIMI flow grade:

1. If there is distal embolization of thrombotic material with no flow down the artery and an abrupt cutoff exist, then the flow is graded as 0. This is the case even if the artery is patent at the site of the original culprit.

2. In cases where the culprit artery is located at a branchpoint, *the slowest flow* down either branch is graded. For instance, while the LAD may have TIMI grade 2 flow, if a diagonal involved with thrombus has TIMI grade 1 flow, then the flow is graded as TIMI grade 1.

3. If the flow changes over the course of several injections performed at a given timepoint, then the slowest flow is used. The act of injection itself may promote clot dissolution, and therefore the injection in which flow is slowest is used.

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APPENDICES TO CHAPTER 10

APPENDIX 10-A

INTERVIEW PROTOCOLS

ORGANIZATIONAL EFFICIENCIES

This part of the interview protocol includes questions that measure the extent of organizational change, either as a result of the demonstration or more basic changes taking place in the medical care marketplace. These questions are generic in the sense that they apply to many departments, including nursing, operating rooms, ICU, catheter lab, and the pharmacy. Slight changes in the wording will make them department-specific when interviewing in a given department. These questions will be asked of each department head separately as well as of the Vice-President for Patients Services, the UR coordinator, and the demo manager.

Overview of Department

1. What department are you responsible for?

2. In general, what kinds of services do bypass patients receive in this department?

3. In the last 2-3 years, what changes have taken place in the way the department in general has been organized and managed? New staffing? Equipment? Inventorying?

4. Have you or your staff conducted any studies of patient flow-through? Results?

5. Do you know of any studies of the time your staff spends with patients? If so, what changes have occurred in labor productivity in your department?

Patient Management

6. As a result of the demonstration, has the hospital instituted any changes in patient management in your department? Internal utilization review? Triaging to less intensive nursing?

7. Has there been any recent changes in the kinds of supplies, drugs, etc. that have been ordered for bypass patients?

8. Patient complications add significantly to costs. What has your department or hospital administration done to avoid complications? How successful have these efforts been? Any evidence?

9. Across departments, have any changes been made in the way bypass patients are sequenced through the hospital? Same day admit? Shorter ICU stays? Stepdown units?

10. Have you noticed any efficiency gains in your department from having the physician staff under the same fixed payment?

11. Are you aware of formal meetings with physicians and your staff that address issues of efficiency and costs?

Drug Utilization

12. Drugs are a major cost of bypass surgery. What are the major kinds of drugs used in bypass surgery and what are they used for?

13. Has the hospital, physicians, or pharmacists conducted any drug utilization studies specific to bypass patients? If so, what was found?

14. Does the hospital have a formulary for heart bypass drugs? Has the hospital reconsidered therapeutic substitutes recently?

15. Has the hospital changed its purchasing arrangements for these or other drugs recently? Have you negotiated larger discounts on certain drugs?

Volume and Severity Effects

16. In the last 2-3 years, have there been any increases or decreases in volume in your department? If so, how much?

17. What is the current utilization rate in your department? How many more bypass patients could be accommodated?

18. Any changes in patient severity? Do you have any measures of severity?

19. How have you responded to volume changes? Added more staff? Expanded beds? New lab facilities? OR suites?

20. If volume has increased, do you think it has allowed you to use your staff more efficiently or have you had to take on staff at a premium or add expensive new beds and equipment?

21. Are you currently facing constraints in expanding bypass volume in your department? If so, what are the constraints?

Future Improvements

22. Where do you feel that savings can be the greatest through changes in either your department or the way bypass patients are treated?

QUESTIONS ON PHYSICIAN PARTICIPATION AND REIMBURSEMENT UNDER THE DEMONSTRATION

This group of questions, to be administered separately to the Director of the Heart Institute, the bid coordinator, a thoracic surgeon, and the manager of the demonstration, concern the physicians' decision to participate in the demo and the way in which they are reimbursed.

Physician Involvement in the Decision to Bid

1. How interested were the various physician specialties in participating in the HCFA demonstration?

2. Which physicians worked actively in writing the initial bid and responding to the follow-up questions and negotiations?

3. What kinds of reimbursement information were provided to the hospital by physicians in determining the initial hospital bid? Did the information differ by specialty? How accurate was this information? How did it compare to HCFA's estimates of physician payments?

4. Was the new RBRVS system ever mentioned as a reason for physicians to participate?

5. What was the nature of the discussions with physicians on how much of a discount to offer HCFA initially? Discussions on revising the physician discount in a best-and-final bid?

6. How was the final division of the single payment between the hospital and the medical staff arrived at? Did the decision process or discounts differ by specialty? If so, how?

7. Please describe the administrative arrangements that were put in place for disbursing the single payment received from HCFA. Was there consideration of setting up a legal joint entity to receive payments?

8. Does the physician staff share in any bonuses or are there any withholds in interim physician payments? If so, how were they determined?

9. If the hospital now has other single-payment contracts, how do the billing, payment, and disbursement arrangements differ from the HCFA demonstration?

10. Have all the physician groups been satisfied with the level and efficiency of disbursements under the demonstration? If not, have any groups requested changes in the system or payment schemes?

11. Is there any sharing with physicians of hospital profits resulting from greater volumes or changes in patient care that lower hospital costs?

12. How do the hospital and physician groups monitor utilization in order to avoid financial losses? What joint monitoring arrangements exist between the hospital and physicians?

INTERVIEW PROTOCOL FOR MICRO-COST ANALYSTS

The purpose of this questionnaire is to ascertain the kinds of micro-cost analyses being conducted by demo hospitals to track the costs of demo patients. Having offered discounts and accepted more risk for outlier cases, we are interested in the ways in which hospitals and physicians are monitoring utilization and costs.

1. Please describe the patient-level costing system the hospital uses to track bypass patients. Place particular emphasis on the degree of detail with regard to services provided, e.g., ICU nursing days, CAT scans, quantities of specific drugs.

2. Please provide a set of example reports that are used to monitor the costs and utilization of demo patients.

3. What do you consider the strengths and weaknesses of your present monitoring system?

4. How has management used the monitoring reports to reduce the costs of demo or other bypass patients?

5. How good is your system in reflecting differences in patient severity and needs when evaluating costs?

6. Does the system stratify patient costs by attending physician or surgeon?

7. Has management talked with department managers about improving efficiency in treating bypass patients? Please elaborate.

8. Has management talked with individual physicians or specialty groups about improving patient flow-through, resource use, etc.? If so, how have your monitoring reports been used in these discussions?

9. To what extent does your monitoring system reflect lower costs due to increases in overall volume? Please consider the way your system treats fixed and variable costs.

10. How does management interpret reports showing losses on individual patients? Are individual patients ever the focus of consideration or is it always a group of patients? If a group, what grouping logic is used?

11. Does management regard differences between charges and allocated costs as a loss, or between payments and costs?

12. If the payment rate negotiated with HCFA covers variable, or direct, costs, and some but not all of fixed costs, how is this viewed by management?

13. How often does reimbursement for a Medicare bypass patient fail to cover average total cost? Average variable costs?

14. Does administration consider the spillover effects of greater bypass volume on other hospital admissions and departmental costs?

15. Is the hospital willing to accept accounting losses on Medicare bypass patients? If yes, why? If no, what has administration been doing to reduce losses?

16. Do you know if your monitoring reports have been used to develop other bids on packaged services for privately insured patients, either for bypass or other kinds of patients?

INTERVIEW PROTOCOL FOR
CEO AND OTHER ADMINISTRATORS
IN COMPETING LOCAL HOSPITALS

This questionnaire is to be used in interviewing the CEO, CFO, and other administrative staff in one or two hospitals performing bypass surgery in the same market as a Medicare Bypass Demonstration hospital. The purposes of the interviews are to determine (1) the impact of the demo hospital's bypass designation on local competitors, (2) the competitive reactions of local hospitals, and (3) the decision by other local hospitals to bid or not to bid to become a HCFA demonstration hospital.

Impact on Local Hospitals

1. How would you characterize the level of overall competition for cardiac surgery in your market? Who are the key providers? Who are the leaders and who are trying to gain a foothold in the market?

2. Has the cardiac surgery market become more competitive in the last 5 years? How so? Which hospitals seem to be gaining market share?

3. Do you consider the heart bypass market locally to be growing, mature and stable, or declining? If stable or declining, how has this affected your marketing efforts?

4. Where does your hospital fit into the local market? Is cardiac surgery a special emphasis of your hospital? Within heart surgery, is bypass surgery emphasized?

5. Are your aware that (fill in demonstration hospital) was designated a Medicare Hospital Bypass Hospital in 1991? How did you find out?

6. Do you know if (demo hospital) has gained volume and market share in the last couple of years? Do you know what has happened to your own market share during this period?

7. How would you characterize the nature of competition between your hospital and (demo hospital)? Strong and direct? Remote? No different than several other hospitals in the market?

8. How would you characterize the quality of care in (demo hospital) for bypass surgery? Best in the city? Similar to your own?

9. Are there local hospitals performing bypass surgery that, in your opinion, shouldn't be?

10. What criteria do you and referring physicians use to rate quality of bypass surgery across hospitals?

11. Are you aware of any changes in the way (demo hospital) is marketing its cardiac surgery program? Examples? What efforts are specific to bypass surgery?

12. How effective do you regard the marketing efforts of (demo hospital) for its bypass surgery program?

Competitive Reactions

13. Did your hospital and physician staffs have any concerns about (demo hospital) being designated a Medicare Heart Bypass Center? If so, what were your concerns?

14. What kinds of advertising or other marketing does your hospital support that is specific to cardiac surgery in general and bypass surgery in particular?

15. Are you aware of any other hospitals being concerned about (demo hospital) being designated a Medicare Bypass Center?

16. Has your hospital negotiated any bundled single payment contracts for heart surgery with private or public insurers or employers? If so, were these packages developed in response to the (demo hospital)? Or were you approached by private insurers/employers to provide a bundled rate for heart surgery similar to Medicare's bypass package?

17. Have you been asked to join a network of hospitals and physician groups providing a bundled package of heart services to insurers or employers? If yes, how has the arrangement worked out?

Decision to Participate in the Medicare Bypass Demonstration

18. Did you consider applying to HCFA to become a heart bypass center? Why or why not?

19. What role did physicians play in your deciding to apply or not?

20. Were you aware that (demo hospital) was submitting a bid?

21. In order to submit a bid, what kinds of information would you need to collect? Would this be a significant obstacle to your applying to be a center?

22. What do you consider to be the strengths and weaknesses of a single bundled payment covering both hospital and physician services for bypass surgery?

23. Would you submit an application to be a HCFA bypass center today?

Questions for hospitals that did apply

24. What were your impressions of the HCFA review process in choosing the bypass demonstration hospitals? Fairness? Opportunities to resubmit a better bid? Relevance of review criteria?

25. Would you submit a new bid to HCFA to become a bypass center if invited? If not, why? Lack of impact on market share? Administrative burden? Physician resistance?

ORGANIZATIONAL EFFICIENCIES

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12. How do the hospital and physician groups monitor utilization in order to avoid financial losses? What joint monitoring arrangements exist between the hospital and physicians?

INTERVIEW PROTOCOL:
ADMINISTRATIVE COSTS

This protocol includes a set of generic questions on the administrative costs associated with becoming a Medicare Heart Bypass Center then implementing and running the demonstration. These questions will be asked separately of the following persons: (1) CFO; (2) Director of the Heart Institute; (3) the person responsible for putting the original bid together; (4) the manager of the demonstration; and (5) the Director of Marketing. The Data Collection Design report that was sent to the four original sites included a general form to be used to estimate labor time across 5 administrative tasks related to the on-going management of the demonstration: (1) billing/accounting; (2) marketing; (3) quality assurance; (4) HCFA reporting; and (5) General administration. This protocol includes, first, a set of specific questions relating to putting the bid together, followed by a second set on the labor and other costs incurred in each of the 5 management areas.

Costs of Putting the Bid Together

1. Please list the various activities that the hospital and physician staffs were engaged in when putting together the initial bid.

2. Can you provide rough estimates of the time involved of various individuals in the major activities related to the bid? Please refer to our Data Collection Protocols.

3. What kinds of statistical work was involved? How much of a burden was the estimation of the cost of bypass patients on the hospital? On physicians?

Costs of On-going Management of the Demonstration

4. What special allocations of personnel have been made to respond to the needs of the demonstration in the areas of billing/accounting, marketing, QA, HCFA reporting, and general administration? Please limit the personnel times to those involved in demo-specific tasks.

5. Has the hospital been monitoring the on-going inputs and costs to managing the demonstration in any way? Please describe.

6. Have these allocations increased or decreased over time? If so, why?

7. What tasks have been particularly burdensome in terms of extra management time? Billing and collection? Reporting?

8. For new hospitals joining the demonstration, what recommendations would you have regarding the administrative structure and personnel inputs necessary to participate in the demonstration?

9. How different would the administrative requirements be if the hospital and physicians were being paid a single rate but not as part of a HCFA demonstration? If you have any similar private contract arrangements, their management requirements might be a good indicator.

10. Do you have any suggestions for improving the way the demonstration is managed by HCFA?

CEO, CFO, AND DEMO MANAGER INTERVIEW PROTOCOL

The primary reasons for interviewing the hospital CEO (and possibly the COO), the manager of the demonstration, and the hospital CFO together is to gather feedback on the reasons for submitting a bid to become a heart bypass center, the goals the hospital has for the demonstration and how they are being accomplished the nature of the interactions with physicians the impact participation has had on the hospital's market and whether the hospital would like to continue in the demonstration and, if not, why.

Reasons for Participating

1. What motivated the hospital to submit an application to become a Medicare Heart Bypass Center? Greater volume? Closer physician relations?. Cost control?

2. How important was volume growth in your decision to participate? Were you concerned about maintaining market share?

3. Did the hospital have any concerns about other local hospitals being selected?

4. What were the major difficulties in submitting a bid and how were they overcome?

Goals for the Demonstration

5. Have all the original goals been attained? If not, what obstacles have you encountered?

6. What administrative changes were made in order to achieve the hospital's goals?

Interactions with Physicians

7. What was the proposed organizational arrangement between the hospital and the cardiac surgeons, anesthesiologists, etc. before the demonstration began?

8. Has the relationship changed in any way since the demonstration began?

9. What was the understanding with the physicians about dividing up the single payment if your application was approved?

10. Are all physicians currently satisfied with the payment arrangement? Are any changes in the distribution of payment contemplated?

Impacts on Market

11. Does the hospital have any serious competitors in the cardiac surgery field? If so, who are they? What makes them major competitors?

12. Have new competitors begun performing bypasses since the demonstration started in June of 1991?

13. Are you tracking the number of bypasses in your facility compared to those performed elsewhere in your market?

14. Has the hospital achieved its desired growth in bypass volume? In the volume of other cardiac cases?

15. What actions have competitors taken to counter the hospital's being named a Medicare Bypass Center? How effective do you think these counter-measures have been?

16. What steps has hospital administration taken to increase its market share of bypass surgery?

17. What discussions and programs has administration undertaken jointly with physicians to increase bypass volumes?

18. How active have surgeons and cardiologists been in promoting the hospital? Any examples?

Continuing the Demonstration

19. Is the hospital satisfied with the way the demonstration has gone?

20. Is the hospital considering withdrawing? If so, for what reasons?

21. What are some of the positive outcomes of participating in the demonstration?

QUESTIONS RELATING TO CLINICAL MANAGEMENT AND OUTCOMES

The purposes of these questions are to examine current status of the cardiac surgery program with special emphasis on changes that have occurred during the Medicare Heart Bypass Center Demonstration in past 3 years. Our particular interests are in:

- organizational and management changes
- growth of the cardiac surgery program
- changes in case-mix
- patterns of care
- techniques of coronary angiography, PTCA, or cardiac surgery
- outcomes or utilization management activities
- data systems to monitor the processes or outcomes of cardiac surgery.

Organization and Management

These questions apply to the Heart InstituteDirector/CEO and to the representatives of each clinical department that are interviewed.

1. What changes in organization and mangement strategies have taken place in individual departments involved in CABG surgery (cardiac surgery, cardiology, anesthesiology, nursing, radiology) and in their relationships with one another? How did these changes come about? What were their objectives? What have their effects been on growth, managment efficiencies, quality of patient care, staff morale?

2. What changes have occurred in your physical plant over the past 3 years as they relate to cardiac surgery or cardiology - in OR, ICU, stepdown units, catheterization laboratories, electrophsyiological laboratory, non-invasive laboratories, hospital beds devoted primarily to cardiac patients? What future changes are anticipated?

3. What changes have occurred in the cardiac surgical staff - number of surgeons with privileges, turnover, case volumes (this hospital and total), proportion that are geographic full-time? What were the reasons for these changes? The effects?

4. What changes have occurred in the cardiology staff - numbers of intervential and non-intervential cardiologists, turnover, case volumes of invasive procedures (this hospital and total), proportion that are geographic full-time?

5. What changes have occurred in the relationships between cardiac surgery and cardiology - in referral arrangements, joint decision-making about cases, pre- and post-operative management of the CABG surgery patient? Why did these changes occur? What have been their effects?

6. What changes have occurred in the relationships of cardiac surgery to anesthesiology, radiology, pulmonary medicine, nursing? What were the reasons for these changes and what have been their effects?

7. What steps have been taken to facilitate patient flow-through (e.g. same-day admission, OR scheduling, ICU length of stay, creation of stepdown units, scheduling of laboratory procedures, discharge planning, etc.)? What have the effects been?

8. What other cost control steps have been implemented (e.g. to reduce drug costs, staffing efficiencies, use of consultants, etc)?

9. What steps have been taken to improve monitoring of utilization and outcomes of care hospitalwide and in individual departments? Please describe these monitoring systems and provide examples of how findings have been used to improve efficiency and outcomes of care.

Cardiac Surgery

Volume and Organization

1. What changes have occurred in the volume of CABG surgery over the past 3 years - in Medicare patients; in other patients? Reasons? Changes in referral sources? HMO or employer contracts, etc.?

2. How are CABG surgery cases assigned to members of the surgical staff - direct referral from outside source or cardiology, rotation, subspecialty area (redos, high risk patients, concurrent valve replacement, etc.)? Changes?

3. How are OR time allotments and schedules determined? Changes?

4. Is cardiac surgery organized into teams? What is the composition of a team? Have changes in the organization of teams occurred over the past 3 years?

5. Is a cardiologist involved in the care of each CABG surgical patient or is a cardiologist consulted only on an "as needed" basis? What is the cardiologist's role before, during, after surgery? Has this changed over the past 3 years? What have these changes been? Why were they made? What have the effects been?

6. Do you have cardiac surgical residents or fellows? What are their roles before, during, and after surgery?

7. How does cardiac surgery standby for PTCA work in practice? Has this changed in the past 3 years? Reasons?

Patterns of Care

1. Are same-day admissions scheduled for CABG surgery? If so, for which patients and what proportion of theMedicare and the total case-load? What have been the benefits and problems related to same-day surgery?

2. If you do not schedule same-day admissions, have other steps been taken to shorten pre-operative length of stay? If so, what have these steps been? What have the effects been?

3. How do you define emergent, urgent, elective CABG?

4. Have there been any changes in pre-operative procedures for patients referred for elective CABG surgery (e.g.) diagnostic work-up, preparation of patient for surgery? Is an exercise stress test obtained on all elective CABG surgery patients? Why? Why not?

5. What indications do you use for performing CABG surgery in patients with unstable angina or following an acute MI? Have indications for CABG surgery in these patients changed over the past 3 years? For what reasons?

6. What indications do you use for inserting an IABP preoperatively?

7. What changes in cardiac surgical techniques have occurred over the past 3 years? What have been their effects - on pump time, completeness of revascularization, incidence of post-op complications, outcomes of surgery?

8. What changes in anesthesia techniques have occurred over the past 3 years? What have been their effects?

9. What changes have occurred in the techniques of ICU care? What have been their effects? Who makes the decision when to d/c the respirator and remove the endotracheal tube?

10. Has there been a change in average ICU length of stay? If so, how much, for what reasons, and with what effects?

11. Have there been changes in management strategies after the patient returns to the floor? Earlier mobilization, earlier or more rehabilitation, patient and family education, drug regimens?

12. If patients are being discharged earlier after CABG surgery, what steps have you taken to ensure needed care after the return home - home care, medical follow-up?

13. What are your follow-up procedures - when, how often, by whom?

14. How do you monitor long-term outcomes after CABG surgery? What data so you have on 3, 6, 12 month mortality or angina relief?

Changes in Case-mix

1. What changes have occurred in the clinical risk factor profile of patients undergoing CABG surgery in the past 3 years (e.g. age, sex, extent of coronary artery disease, proportion of redos, left ventricular function, severity of comorbidities)?

2. Has there been an increase in the proportion of emergent or urgent cases? For what reasons?

3. What are the reasons for these changes - role of PTCA, referral patterns, indications for CABG surgery in patients with unstable angina or after AMI?

Cardiology

1. What changes have occurred in the volumes of coronary angiography and PTCA over the past 3 years? What are the major reasons for these changes ?

2. What are your major referral sources for coronary angiography? for PTCA? Have these changed over the past 3 years? For what reasons?

3. What proportion of AMI admissions receive thrombolytic drugs? What proportion receive a coronary angiogram, PTCA, CABG surgery during the AMI admission? What changes have occurred over the past 3 years? Reasons?

4. What proportions of patients with unstable angina receive a coronary angiogram, PTCA, or CABG during their admissions? Changes over the past 3 years?

5. Who interprets the coronary angiogram? Using what measurement technique? Changes over the past 3 years?

6. What proportion of patients who receive a coronary angiogram and have a "significant" stenosis receive a PTCA at the same sitting ? What are the indications for "same day" PTCA? Changes over the past 3 years?

7. When a patient is referred for CABG or PTCA with an angiogram performed elsewhere, who evaluates whether the procedure is adequate to guide the procedure? In what proportion of patients does the angiogram have to be repeated?

8. When a patient is referred to cardiac surgery, what role does the cardiologist play before, during, and after surgery? After discharge? What changes have occurred in the role of the cardiologist over the past 3 years?

9. What changes have occurred in the case-mix of patients receiving PTCA over the past 3 years?

10. What changes in PTCA technique have occurred over the past 3 years? What effects have these had on indications for PTCA, extent of revascularization, outcomes?

Anesthesiology

1. What changes have occurred in organization of anesthesiology vis cardiac surgery over the past 3 years - number of anesthesiologists, case-loads (in hospital, total), turnover, geographic full-time?

2. What changes have occurred in anesthesiology techniques? How have these affected the safety and effectiveness of anesthesiology in cardiac surgery?

3. Are nurse anesthetists involved in cardiac surgery? What are their responsibilities? Has there been any change in the use of nurse anesthetists over the past 3 years?

4. What role does the anesthesiologist play in pre-operative planning? In providing post-operative respiratory care?

5. Do you have a registry to capture intra-operative and post-operative anesthesia complications? How is this registry used to document and improve performance?

6. What patient characteristics increase the complexity of anesthesia? Its risks? Has the case-mix severity increased over the past 3 years? In what respects?

ICU Care - Nursing, Intensivist/Pulmonolgist, Cardiac Surgery

1. Who is primarily responsible for respiratory care of the CABG patient in the ICU? How are responsibilities divided between anesthesiology, respiratory medicine, cardiac surgery, ICU nursing?

2. What changes in ICU staffing and roles/responsibilities have occurred over the past 3 years? What were the reasons for these changes? Their effects?

3. What changes have occurred in ICU practice/technology over the past 3 years? What have been the effects of these changes on patient management and outcomes?

4. Has the length of ICU become shorter? How has this been achieved? With what effects on needs for care and risks of complications after the patient leaves the ICU?

Floor Care - Nursing, Rehabilitation, Discharge Planning

1. What are the major risks after the patient returns to the floor? How are these risks identified and dealt with? Has the case-mix changed over the past 3 years? In what respects? With what effects on care needs?

2. What is the role of rehabilitation? Is a rehabilitation specialist involved? When and with what treatment goals?

3. How is responsibility for medical care divided between the cardiac surgeon and cardiologist?

4. Who are the main participants in discharge planning? Who is in charge? What are the major considerations and guiding principles? Have there been any important changes in the discharge planning process over the past 3 years? What are they? What have been their effects on shortening length of stay and improving post-discharge outcomes?

5. What are the objectives of patient and family education? Who provides this education? How is its success measured?

6. What steps are taken to ensure continuity of care after hospital discharge? How does this differ if the patient lives locally or at a distance? Have there been any changes is efforts to ensure continuity of care over the past 3 year?

Quality and Utilization Management

1. How is the appropriateness of decisions to perform CABG surgery monitored? What criteria do you use? Is assessment done prior to admission or retrospectively? Have any problems been identified? If so, how has your program dealt with them? Have there been any changes in indications for CABG surgery during the past 3 years? What are they? What are their justifications ?

2. What clinical indicators do you monitor routinely (e.g.) operative deaths, reoperations for bleeding, complication rates? Are data on these events collected prospectively or retrospectively? How are profiles examined? What actions have been taken to examine outliers? Please describe an example of a potential quality problem that was identified and how is was evaluated.

3. What process indicators are monitored? Examples might be the interval between referral and admission for elective CABG surgery; interval between the request and performance of coronary angiography in a patient with unstable angina; or the interval between the request for and performance of a non-invasive cardiac test.

4. Is length of stay monitored prospectively or retrospectively? What criteria do you use? If prospective, how is the information used to facilitate timely discharge? If retrospective, how are the data used to influence future decision-making?

5. Is the discharge planning process monitored? How? What types of problems/issues have been identified? How have these been dealt with?

6. Do inefficiencies in patient management result from delays in scheduling tests or procedures, availability of beds in the desired unit, availability of the required physician (cardiac surgeon, cardiologist, anesthesiologist), discharge arrangements? What steps have been taken to correct these? Has the frequency of "administrative" delays in patient care changed over the past 3 years? Please give examples.

7. Are readmissions monitored? With what objectives? What have been the findings?

Clinical Data Collection for the Medicare Heart Bypass Center Demonstration

1. What is the current status of your cardiac surgery registry? Is it based on an existing system or unique to your hospital. Is it fully computerized? How long after discharge is a case entered? By whom? What data sources are used? Do you have a cross-walk with your cardiac catheterization laboratory to enter cath/coronary angiogram results? How is data accuracy validated?

2. What definitions are used in your registry for:

- unstable angina
- AMI
- revascularization priority (emergency, urgent, elective)
- method for measuring percent stenosis of coronary arteries
- method for measuring left ventricular ejection fraction
- postoperative complications such as wound infection, intraoperative MI, stroke
- congestive heart failure

3. How do you ensure consistent use of these definitions?

4. How is the registry used to evaluate and improve your cardiac surgery program?

5. What clinical outcomes do you monitor routinely - operative deaths, surgical complications, readmissions, longer-term outcomes ? What trends have you observed?

6. What case-mix variables are the most important markers of operative deaths, post-operative complications, longer-term survival, angina relief?

APPENDICES TO CHAPTER 11

APPENDIX 11-A

COST COMPONENT EXPENSES BY DRG/PATIENT/DEPT/CHARGE CODE
DATA REQUESTS #4-6 FROM TABLE 1
SAMPLE REPORT

	TOTAL UNITS	DIR FIX SALARY	DIR VAR SALARY	DIR FIX NON-SAL	DIR VAR NON-SAL	DIR FIX CAPITAL	IND FIX SALARY	IND VAR SALARY	IND FIX NON-SAL	IND VAR NON-SAL	IND FIX CAPITAL	TOTAL COSTS	TOT COST PER UNIT
DRG 106 CORONARY BYPASS W/ CAR													
6000072 4 HOURS (O R)	1.00	9.82	212.94	0.51	93.28	31.83	56.48	10.54	3.92	6.68	23.39	449.38	449.38
6002151 PEN HEART RM SE	1.00	13.30	0.00	0.51	181.68	0.00	0.00	0.00	3.92	13.01	0.00	212.42	212.42
6002353 SPLIT SHEET	3.00	0.76	3.84	1.54	9.88	0.57	1.02	0.19	11.76	0.71	0.42	30.70	10.23
6002359 ADDITIONAL PERS	1.00	0.79	160.55	0.51	69.26	24.00	42.59	7.95	3.92	4.96	17.63	332.14	332.14
6002634 AORTIC PUNCH	1.00	1.29	0.00	0.51	8.87	0.00	0.00	0.00	3.92	0.64	0.00	15.23	15.23
6002751 BOVIE PENCIL-RE	1.00	0.33	1.81	0.51	4.65	0.27	0.48	0.09	3.92	0.33	0.20	12.59	12.59
6002773 SLUSH MACHINE	1.00	0.83	4.22	0.51	10.85	0.63	1.12	0.21	3.92	0.78	0.46	23.53	23.53
10 OPERATING ROOM	9.00	27.11	383.35	4.61	378.46	57.30	101.68	18.98	35.29	27.10	42.10	1075.99	119.55
6812177 THOMAS PUMP SET	1.00	0.87	97.14	12.63	167.80	6.82	17.87	3.91	40.46	6.40	7.85	361.74	361.74
12 PERFUSIONIST	1.00	0.87	97.14	12.63	167.80	6.82	17.87	3.91	40.46	6.40	7.85	361.74	361.74
7306008 ANESTHES SUPP 4	1.00	2.05	27.73	1.29	46.86	4.14	7.36	1.37	9.87	3.36	3.05	107.07	107.07
7306026 INTRA-OP EKG	1.00	0.38	5.17	0.24	8.73	0.77	1.37	0.26	1.84	0.63	0.57	19.95	19.95
7306033 AUTO NON-INVA B	1.00	0.13	1.71	0.08	2.88	0.25	0.45	0.08	0.61	0.21	0.19	6.58	6.58
7306040 PERC SHEATH INT	1.00	0.68	9.23	0.43	15.60	1.38	2.45	0.46	3.28	1.12	1.01	35.64	35.64
7307044 SWAN GANZ CATHE	1.00	1.34	18.20	0.85	30.76	2.72	4.83	0.90	6.48	2.20	2.00	70.29	70.29
7307046 PULSE OXIMETER	1.00	0.35	4.70	0.22	7.95	0.70	1.25	0.23	1.67	0.57	0.52	18.17	18.17
7307047 END TIDAL CO2 M	1.00	0.35	4.70	0.22	7.95	0.70	1.25	0.23	1.67	0.57	0.52	18.17	18.17
30 ANESTHESIA	7.00	5.28	71.44	3.32	120.74	10.68	18.95	3.54	25.42	8.65	7.85	275.86	39.41
7470002 INTRA OP SWAN L	1.00	0.50	6.74	0.31	11.39	1.01	1.79	0.33	2.40	0.82	0.74	26.03	26.03
7470003 INTRA OP ARTERI	1.00	0.33	4.48	0.21	7.58	0.67	1.19	0.22	1.60	0.54	0.49	17.31	17.31
7470005 INTRA OP CARDIA	1.00	0.25	3.38	0.16	5.72	0.51	0.90	0.17	1.20	0.41	0.37	13.06	13.06
7470006 SL BLOOD GAS	3.00	0.96	12.99	0.60	21.96	1.94	3.45	0.64	4.62	1.57	1.43	50.18	16.73
7470008 SL NA/K	7.00	1.38	18.63	0.87	31.48	2.78	4.94	0.92	6.63	2.25	2.05	71.93	10.28
7470009 SL GLUCOSE	7.00	0.69	9.34	0.43	15.79	1.40	2.48	0.46	3.32	1.13	1.03	36.08	5.15
7470010 TRANSPORT MONIT	1.00	0.29	3.87	0.18	6.54	0.58	1.03	0.19	1.38	0.47	0.43	14.94	14.94
7470011 INTRA OP HEMOCH	1.00	0.29	3.87	0.18	6.54	0.58	1.03	0.19	1.38	0.47	0.43	14.94	14.94
7470014 MISCELLANEOUS C	1.00	0.48	6.55	0.30	11.07	0.98	1.74	0.32	2.33	0.79	0.72	25.28	25.28
7470015 SL ION CALCIUM	1.00	0.48	6.55	0.30	11.07	0.98	1.74	0.32	2.33	0.79	0.72	25.28	25.28
7470016 IN-LINE SENSOR	7.00	0.69	9.34	0.43	15.79	1.40	2.48	0.46	3.32	1.13	1.03	36.08	5.15
7470029 3 DISPOSABLE TR	1.00	0.12	1.59	0.07	2.68	0.24	0.42	0.08	0.56	0.19	0.17	6.13	6.13
7470030 2 SL BLOOD GASE	1.00	1.26	17.05	0.79	28.81	2.55	4.52	0.84	6.07	2.06	1.87	65.83	65.83
35 STAT LAB	4.00	2.56	34.62	1.61	58.51	5.17	9.18	1.71	12.32	4.19	3.80	133.68	33.42
	36.00	9.79	132.46	6.16	223.85	19.80	35.14	6.56	47.14	16.03	14.55	511.46	14.21
7107102 CHEST PA & LATE	2.00	1.57	5.10	3.39	5.10	3.67	6.25	1.11	16.35	4.90	2.75	50.17	25.09
7107106 CHEST PORTABLE	3.00	9.81	31.85	5.09	31.89	22.91	39.05	6.91	24.52	30.63	17.16	219.81	73.27
45 RADIOLOGY-GENERAL	5.00	11.38	36.95	8.49	36.99	26.57	45.29	8.01	40.87	35.53	19.90	269.98	54.00
7933000 GLUCOSE	2.00	0.15	3.03	7.40	1.52	0.59	1.50	0.51	3.99	0.79	0.62	20.11	10.06
7933006 CHEM 6	1.00	0.08	1.52	3.70	1.44	0.76	0.75	0.26	2.00	0.74	0.80	12.03	12.03
7933007 CHEM 7	3.00	0.23	4.57	11.10	4.79	2.61	2.27	0.77	5.99	2.48	2.74	37.54	12.51
7933020 CHEM 20	4.00	1.38	27.13	14.80	12.08	4.22	13.46	4.58	7.98	6.26	4.43	96.34	24.08
7933040 MAGNESIUM	1.00	0.15	2.85	3.70	1.27	0.44	1.41	0.48	2.00	0.66	0.46	13.41	13.41
7933060 POTASSIUM	2.00	0.15	3.03	7.40	1.39	0.50	1.50	0.51	3.99	0.72	0.52	19.72	9.86

COST COMPONENT EXPENSES BY DRG/PATIENT/DEPT/CHARGE CODE
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SAMPLE REPORT

	TOTAL UNITS	DIR FIX SALARY	DIR VAR SALARY	DIR FIX NON-SAL	DIR VAR NON-SAL	DIR FIX CAPITAL	IND FIX SALARY	IND VAR SALARY	IND FIX NON-SAL	IND VAR NON-SAL	IND FIX CAPITAL	TOTAL COSTS	TOT COST PER UNIT
DRG 106 CORONARY BYPASS W/ CAR													
7933651 T3 UPTAKE	1.00	0.17	3.26	3.70	1.45	0.51	1.62	0.55	2.00	0.75	0.53	14.53	14.53
7933652 T4 RIA	1.00	0.17	3.26	3.70	1.45	0.51	1.62	0.55	2.00	0.75	0.53	14.53	14.53
7933653 FTI	1.00	0.13	2.51	3.70	1.12	0.39	1.24	0.42	2.00	0.58	0.41	12.49	12.49
82 CHEMISTRY	16.00	2.61	51.16	59.19	26.50	10.53	25.38	8.64	31.93	13.73	11.04	240.70	15.04
7944000 CBC AND DIFF	1.00	0.15	7.66	0.04	5.87	0.04	2.54	1.04	1.08	1.61	0.45	20.48	20.48
7944060 HEM 8	5.00	0.32	16.27	0.19	12.48	0.12	5.39	2.21	5.38	3.43	1.30	47.08	9.42
7944070 CBC AND DIFF (F	3.00	0.16	8.13	0.11	6.27	0.12	2.69	1.10	3.23	1.72	1.28	24.82	8.27
7944280 PROTIME	2.00	0.13	6.51	0.08	5.02	0.10	2.16	0.88	2.15	1.38	1.04	19.44	9.72
7944290 PTT	8.00	0.51	26.03	0.31	20.09	0.39	8.62	3.53	8.60	5.52	4.11	77.72	9.71
84 HEMATOLOGY	19.00	1.27	64.59	0.73	49.74	0.77	21.40	8.76	20.43	13.67	8.19	189.53	9.98
7978000 STAT CHARGE	9.00	1.38	33.21	18.17	14.96	2.47	15.36	4.44	12.14	7.06	6.84	116.04	12.89
7978001 IP COLLECTION	9.00	0.81	19.56	10.70	8.81	1.46	9.05	2.62	7.15	4.16	4.03	68.35	7.59
7978532 FREE T4	1.00	1.04	25.07	13.72	11.29	1.87	11.59	3.35	9.17	5.33	5.17	87.60	87.60
86 LAB COLLECTION/PROCESS	19.00	3.23	77.85	42.58	35.07	5.80	36.00	10.41	28.46	16.55	16.04	271.99	14.32
7922025 TYPE SCREEN HOL	1.00	0.79	7.46	0.20	40.06	0.61	3.33	0.93	2.75	2.10	1.83	60.04	60.04
7922116 CROSSMATCH	5.00	3.79	35.61	0.98	23.71	0.24	15.88	4.42	13.73	1.24	0.73	100.33	20.07
7922550 PLSM PROT FRAC	2.00	1.30	12.21	0.39	62.43	0.95	5.44	1.52	5.49	3.27	2.84	95.84	47.92
90 BLOOD BANK	8.00	5.88	55.28	1.56	126.20	1.80	24.65	6.87	21.98	6.60	5.39	256.21	32.03
7087900 ARTERIAL BLOOD	11.00	2.52	52.62	8.77	21.72	6.47	49.49	9.38	52.33	15.58	10.94	229.81	20.89
100 INHALATION THERAPY	11.00	2.52	52.62	8.77	21.72	6.47	49.49	9.38	52.33	15.58	10.94	229.81	20.89
7424101 OXY CANNULA CON	1.00	0.00	0.00	0.27	3.10	0.34	0.00	0.00	0.97	0.74	0.52	5.94	5.94
7424102 OXY CANNULA PRN	4.00	0.00	0.00	1.09	12.41	1.34	0.00	0.00	3.87	2.96	2.09	23.75	5.94
7424113 VENTILATOR VOLU	1.00	0.00	0.00	0.27	30.26	3.27	0.00	0.00	0.97	7.21	5.08	47.08	47.08
7424116 OXYGEN TRANSPOR	1.00	2.62	38.42	0.27	4.06	0.44	6.37	1.44	0.97	0.97	0.68	56.24	56.24
7424119 SX GASTRIC	1.00	0.00	0.00	0.27	3.49	0.38	0.00	0.00	0.97	0.83	0.59	6.53	6.53
7424121 SX THORACIC	1.00	0.00	0.00	0.27	3.49	0.38	0.00	0.00	0.97	0.83	0.59	6.53	6.53
7424122 SX TRACHEAL	1.00	0.00	0.00	0.27	3.49	0.38	0.00	0.00	0.97	0.83	0.59	6.53	6.53
7424125 RX I.S. PER/RX	5.00	0.00	0.00	1.36	0.00	0.00	0.00	0.00	4.84	0.00	0.00	6.19	1.24
7424138 OXYGEN SET UP	1.00	0.56	8.28	0.27	0.88	0.09	1.37	0.31	0.97	0.21	0.15	13.09	13.09
7424140 VENTILATOR SET	1.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.97	0.00	0.00	1.24	1.24
7424141 SUCTION SET UP	3.00	1.94	28.51	0.82	3.01	0.33	4.73	1.07	2.90	0.72	0.51	44.53	14.84
7424142 RX NEWSTART	1.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.97	0.00	0.00	1.24	1.24
7424143 OXYGEN CDE	1.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.97	0.00	0.00	1.24	1.24
7424147 STERILE WATER 2	1.00	0.67	9.88	0.27	1.04	0.11	1.64	0.37	0.97	0.25	0.18	15.38	15.38
7424155 EQP. I.S. DISP.	1.00	0.91	13.35	0.27	1.41	0.15	2.21	0.50	0.97	0.34	0.24	20.35	20.35
7424176 MONITOR CO2/OXI	2.00	5.23	76.84	0.54	8.13	0.88	12.74	2.88	1.93	1.94	1.37	112.48	56.24
104 RESPIRATORY THERAPY	26.00	11.94	175.27	7.07	74.79	8.09	29.06	6.57	25.14	17.83	12.57	368.33	14.17
6901003 ELECTROCARDIOGR	5.00	1.11	19.30	1.13	45.47	7.71	6.59	1.21	10.54	5.01	2.59	100.66	20.13
6901012 STAT EKG	1.00	0.35	5.99	0.23	14.12	2.39	2.05	0.38	2.11	0.79	0.80	29.20	29.20
130 EKG	6.00	1.46	25.29	1.36	59.59	10.10	8.64	1.58	12.65	5.79	3.39	129.85	21.64

COST COMPONENT EXPENSES BY ORG/PATIENT/DEPT/CHARGE CODE
OATA REQUESTS #4-6 FROM TABLE 1
SAMPLE REPORT

	TOTAL UNITS	DIR FIX SALARY	DIR VAR SALARY	DIR FIX NON-SAL	DIR VAR NON-SAL	DIR FIX CAPITAL	IND FIX SALARY	IND VAR SALARY	IND FIX NON-SAL	IND VAR NON-SAL	IND FIX CAPITAL	TOTAL COSTS	TOT COST PER UNIT
DRG 106 CORONARY BYPASS W/ CAR													
6218526 MCGAW PUMP/OAY	17.00	0.03	0.61	0.60	45.53	0.58	0.19	0.04	5.12	3.04	2.70	58.44	3.44
6330010 ADMISSION KIT	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6330252 BLOOD-PACK UN 4	2.00	0.00	0.02	0.07	1.60	0.07	0.01	0.00	0.60	0.11	0.32	2.80	1.40
6330407 POUCH,TELEMTRY	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6330967 CATH 2WAY 5CC 1	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6331108 CATH ALL PURPOS	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6331168 CATH THORACIC 3	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6331152 CATH THOR R ANG	3.00	0.01	0.13	0.11	9.61	0.10	0.04	0.01	0.90	0.64	0.48	12.03	4.01
6332223 ORAIN SHIRLEY W	1.00	0.00	0.01	0.04	1.07	0.03	0.00	0.00	0.30	0.07	0.16	1.69	1.69
6335001 RAZOR PREP	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6335083 PLUG M/LL OEADE	4.00	0.01	0.17	0.14	12.82	0.14	0.05	0.01	1.20	0.86	0.64	16.04	4.01
6335101 BAG,ATS PLEUR-E	1.00	0.00	0.01	0.04	0.88	0.03	0.00	0.00	0.30	0.06	0.16	1.49	1.49
6335103 PLEUR-EVAC CHES	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6336010 SHAVE PREP KIT	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6336204 STOCK KNEE LG R	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6336242 SUCT TRAY 14FR	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6336243 SUCT YANKAUER S	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6336280 SUTURE REMOVAL	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.0	0.30	0.21	0.16	4.01	4.01
6337013 TAPE OURAPORE 1	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6337014 TAPE OURAPORE 2	3.00	0.01	0.13	0.11	9.61	0.10	0.04	0.01	0.90	0.64	0.48	12.03	4.01
6337033 THORA-ORAIN SET	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6337054 TRANSDUCER OISP	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6337056 TRANSPALK 2000	1.00	0.00	0.01	0.04	0.59	0.03	0.00	0.00	0.30	0.04	0.16	1.17	1.17
6337253 TUBE LEVINE PLA	1.00	0.00	0.00	0.04	0.22	0.03	0.00	0.00	0.30	0.01	0.16	0.77	0.77
6337297 TUBE PR ST 3/4	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6340020 BAND DEPUY 4" O	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6340205 SPONGE 4X4 10'S	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6340206 SPONGE 4X4 ORA1	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6350151 ANGIOCATH 14X5	4.00	0.01	0.17	0.14	12.82	0.14	0.05	0.01	1.20	0.86	0.64	16.04	4.01
6350154 ANGIOCATH 16X5	4.00	0.01	0.17	0.14	12.82	0.14	0.05	0.01	1.20	0.86	0.64	16.04	4.01
6350163 ANGIOSET 22X3/4	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6350164 ANGIOSET 20X1	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6350196 BLOOD AOM SET &	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6350311 CATH ADAPTER/LL	2.00	0.00	0.01	0.07	0.47	0.07	0.00	0.00	0.60	0.03	0.32	1.57	0.78
6350323 CAP,IV INJECTIO	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6350362 SOL VOL INFUSIO	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6350398 INLINE FILTER S	4.00	0.01	0.17	0.14	12.82	0.14	0.05	0.01	1.20	0.86	0.64	16.04	4.01
6350722 IV CATH CARE KI	4.00	0.01	0.17	0.14	12.82	0.14	0.05	0.01	1.20	0.86	0.64	16.04	4.01
6350782 SECONDARY 1832	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6351330 COIL,BLOOD WARM	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
6355096 PUMP/PRIMARY UN	2.00	0.00	0.09	0.07	6.41	0.07	0.03	0.01	0.60	0.43	0.32	8.02	4.01
6355097 PUMP/PRIMARY VE	1.00	0.00	0.04	0.04	3.20	0.03	0.01	0.00	0.30	0.21	0.16	4.01	4.01
150 CENTRAL SUPPLY	84.00	0.16	3.21	2.95	239.41	2.87	1.00	0.24	25.30	15.97	13.35	304.45	3.62
7600001 IV ADMIX SERVIC	4.00	0.05	0.75	1.64	4.36	0.03	0.26	0.07	1.46	0.37	0.72	9.71	2.43
7600238 LIOOCAINE INJ	1.00	0.05	0.82	0.41	4.77	0.04	0.28	0.07	0.37	0.41	0.18	7.40	7.40

COST COMPONENT EXPENSES BY ORG/PATIENT/OEPT/CHARGE CODE
DATA REQUESTS #4-6 FROM TABLE 1
SAMPLE REPORT

	TOTAL UNITS	OIR FIX SALARY	OIR VAR SALARY	OIR FIX NON-SAL	OIR VAR NON-SAL	OIR FIX CAPITAL	IND FIX SALARY	IND VAR SALARY	IND FIX NON-SAL	IND VAR NON-SAL	IND FIX CAPITAL	TOTAL COSTS	TOT COST PER UNIT
DRG 106 CORONARY BYPASS W/ CAR													
7601001 IV HEPARIN 100	2.00	0.31	4.57	0.82	1.67	0.01	1.56	0.42	0.73	0.14	0.36	10.58	5.29
7607004 IV CEFAZOLIN 0.	6.00	0.92	13.70	2.46	9.27	0.05	4.69	1.25	2.19	0.79	1.08	36.39	6.07
7607024 IV CEFAZOLIN 1	5.00	0.76	11.42	2.05	11.93	0.08	3.91	1.04	1.83	1.02	0.90	34.93	6.99
7607174 IV ZANTAC 50 MG	3.00	0.46	6.85	1.23	10.68	0.07	2.35	0.62	1.10	0.91	0.54	24.81	8.27
7607739 LEVOPHED 4MG IV	1.00	0.02	0.35	0.41	2.04	0.02	0.12	0.03	0.37	0.17	0.18	3.71	3.71
7608332 CARDIOPLEGIC/MU	3.00	0.94	14.01	1.23	81.78	0.64	4.80	1.28	1.10	6.96	0.54	113.28	37.76
7608518 05W 250ML,HEPAR	2.00	0.26	3.81	0.82	22.24	0.17	1.31	0.35	0.73	1.89	0.36	31.94	15.97
7608532 05W 250ML LEVOP	3.00	0.26	3.83	1.23	22.33	0.18	1.31	0.35	1.10	1.90	0.54	33.01	11.00
7608532 05W 250ML LEVOP	3.00	0.46	6.85	1.23	4.71	0.03	2.35	0.62	1.10	0.40	0.54	18.28	6.09
7609155 IV SOD BICARB 8	3.00	0.46	6.85	1.23	3.82	0.01	4.69	1.25	2.19	0.33	1.08	30.44	5.07
7609275 IV KCL 20 MEQ.	6.00	0.92	13.70	2.46	3.82	0.01	0.00	0.00	0.37	0.02	0.18	1.23	1.23
7611044 ACETOMINOPHEN 1	1.00	0.00	0.04	0.41	0.20	0.00	0.01	0.00	0.37	0.02	0.18	1.23	1.23
7611064 MAALOX 30 CC UD	1.00	0.00	0.04	0.41	0.20	0.00	0.01	0.00	0.37	0.02	0.18	1.23	1.23
7612243 FERRO-SEQUELS	7.00	0.02	0.25	2.87	1.43	0.01	0.08	0.02	2.56	0.12	1.25	8.61	1.23
7612683 ASA 1 1/4 GR TA	5.00	0.01	0.12	2.05	0.68	0.01	0.04	0.01	1.83	0.06	0.90	5.69	1.14
7612683 ASA 1 1/4 GR TA	3.00	0.06	0.91	1.23	5.32	0.04	0.31	0.08	1.10	0.45	0.54	10.04	3.35
7620600 MORPHINE IVP	3.00	0.06	0.91	1.23	0.64	0.00	0.78	0.21	0.37	0.05	0.18	5.07	5.07
7624027 MEPERIOINE 75MG	1.00	0.15	2.28	0.41	0.64	0.00	2.35	0.62	1.10	0.16	0.54	15.22	5.07
7624029 MEPERIOINE 50 M	3.00	0.46	6.85	1.23	1.91	0.00	3.13	0.83	1.46	0.96	0.72	29.84	7.46
7624036 FENTANYL 20 CC	2.00	0.61	9.13	1.64	11.28	0.08	1.56	0.42	0.73	1.29	0.36	25.30	12.65
7644269 VERSED 10MG/2ML	2.00	0.31	4.57	0.82	15.13	0.12	4.69	1.25	2.19	0.31	1.08	30.22	15.04
7644629 OARVOCET-N 100	6.00	0.92	13.70	2.46	3.62	0.00	0.02	0.01	0.37	0.03	0.18	1.41	1.41
7644729 VALIUM 10 MG TA	1.00	0.00	0.06	0.41	0.34	0.00	0.01	0.00	0.37	0.02	0.18	1.23	1.23
7644894 HALCION 0.25 MG	1.00	0.00	0.04	0.41	0.20	0.00	0.01	0.00	0.37	0.02	0.18	1.23	1.23
7663856 OEX 5%W 250 CC	3.00	0.46	6.85	1.23	2.88	0.01	2.35	0.62	1.10	0.25	0.54	16.28	5.43
7663900 SALINE NORMAL	5.00	0.76	11.42	2.05	4.72	0.02	3.91	1.04	1.83	0.40	0.90	27.05	5.41
7663906 OEX 5%W 1000 CC	1.00	0.15	2.28	0.41	1.04	0.00	0.78	0.21	0.37	0.09	0.18	5.52	5.52
7663907 DEX 5%W 500 CC	1.00	0.15	2.28	0.41	0.96	0.00	0.78	0.21	0.37	0.08	0.18	5.43	5.43
7663912 OEX 5% .45 S 10	1.00	0.15	2.28	0.41	1.09	0.00	0.78	0.21	0.37	0.09	0.18	5.57	5.57
7663917 OEX 5% .2 S 500	4.00	0.00	0.00	1.64	1.93	0.02	0.00	0.00	1.46	0.16	0.72	5.93	1.48
7663919 LAC.RINGERS 100	3.00	0.46	6.85	1.23	3.36	0.01	2.35	0.62	1.10	0.29	0.54	16.80	5.60
7663924 SALINE NORMAL 1	6.00	0.92	13.70	2.46	7.12	0.03	4.69	1.25	2.19	0.61	1.08	34.04	5.67
7663943 SALINE .9 IRR.	1.00	0.15	2.28	0.41	1.08	0.00	0.78	0.21	0.37	0.09	0.18	5.56	5.56
7663962 NS 500ML/HEPARI	1.00	0.15	2.28	0.41	2.18	0.01	0.78	0.21	0.37	0.19	0.18	6.76	6.76
7670673 HEPARIN 5000U	9.00	1.38	20.55	3.69	12.78	0.07	7.04	1.87	3.29	1.09	1.61	53.36	5.93
7671282 NTG DRIP 250ML	1.00	0.15	2.28	0.41	1.65	0.01	0.78	0.21	0.37	0.14	0.18	6.18	6.18
7673850 SALINE FLUSH IN	10.00	1.53	22.83	4.10	8.95	0.03	7.82	2.08	3.65	0.76	1.79	53.55	5.36
7675169 PROTAMINE 250 M	2.00	0.31	4.57	0.82	11.83	0.09	1.56	0.42	0.73	1.01	0.36	21.69	10.85
7675211 TAGAMET 300 MG	2.00	0.06	0.86	0.82	5.04	0.04	0.30	0.08	0.73	0.43	0.36	8.72	4.36
7675212 CA CHLORIDE 10	2.00	0.31	4.57	0.82	1.41	0.00	1.56	0.42	0.73	0.12	0.36	10.29	5.15
7675262 CLINORIL 150 MG	8.00	0.04	0.65	3.28	3.82	0.03	0.22	0.06	2.92	0.32	1.43	12.79	1.60
7675264 CLINORIL 200 MG	2.00	0.01	0.19	0.82	1.09	0.01	0.06	0.02	0.73	0.09	0.36	3.38	1.69
7675432 REGLAN 2 ML AMP	3.00	0.06	0.91	1.23	5.32	0.04	0.31	0.08	1.10	0.45	0.54	10.04	3.35
7675457 LOPRESSOR 50 MG	14.00	0.03	0.49	5.74	2.86	0.02	0.17	0.04	5.11	0.24	2.51	17.23	1.23
7676025 NITRO GLYCERIN	1.00	0.15	2.28	0.41	1.52	0.01	0.78	0.21	0.37	0.13	0.18	6.04	6.04
7676513 ADRENALIN 1CC 1	2.00	0.04	0.61	0.82	3.56	0.03	0.21	0.06	0.73	0.30	0.36	6.69	3.35
7676769 BENADRYL AMPS 5	1.00	0.02	0.30	0.41	1.77	0.01	0.10	0.03	0.37	0.15	0.18	3.35	3.35
7676777 BENADRYL 25MG C	1.00	0.00	0.04	0.41	0.20	0.00	0.01	0.00	0.37	0.02	0.18	1.23	1.23

COST COMPONENT EXPENSE BY DRG/PATIENT/DEPT/CHARGE CODE
DATA REQUESTS #4-6 FROM TABLE 1
SAMPLE REPORT

	TOTAL UNITS	DIR FIX SALARY	DIR VAR SALARY	DIR FIX NON-SAL	DIR VAR NON-SAL	DIR FIX CAPITAL	IND FIX SALARY	IND VAR SALARY	IND FIX NON-SAL	IND VAR NON-SAL	IND FIX CAPITAL	TOTAL COSTS	TOT COST PER UNIT
DRG 106 CORONARY BYPASS W/ CAR													
7676977 COMPAZINE 2 ML	1.00	0.02	0.30	0.41	1.77	0.01	0.10	0.03	0.37	0.15	0.18	3.35	3.35
7677715 LANOXIN 0.25MG	6.00	0.01	0.21	2.46	1.23	0.01	0.07	0.02	2.19	0.10	1.08	7.38	1.23
7678017 NEOSYNEPH 1% 1C	2.00	0.31	4.57	0.82	5.44	0.04	1.56	0.42	0.73	0.46	0.36	14.70	7.35
7678029 NITROSTAT 0.4MG	2.00	0.31	4.57	0.82	2.76	0.01	1.56	0.42	0.73	0.23	0.36	11.77	5.88
7678111 PAPAVERINE 30MG	1.00	0.04	0.64	0.41	3.75	0.03	0.22	0.06	0.37	0.32	0.18	6.02	6.02
7678210 FAMOTIDINE 40MG	2.00	0.02	0.33	0.82	1.91	0.01	0.11	0.03	0.73	0.16	0.36	4.49	2.24
7678796 NICARDIPINE 20M	6.00	0.91	13.60	2.46	79.35	0.62	4.66	1.24	2.19	6.75	1.08	112.86	18.81
7678861 SYNTHROID .15 M	7.00	0.02	0.25	2.87	1.43	0.01	0.08	0.02	2.56	0.12	1.25	8.61	1.23
7678888 ZANTAC 150 MG.	10.00	1.53	22.83	4.10	12.95	0.06	7.82	2.08	3.65	1.10	1.79	57.92	5.79
7679203 HEPARIN 10 ML	5.00	0.76	11.42	2.05	7.10	0.04	3.91	1.04	1.83	0.60	0.90	29.65	5.93
7679453 NITRO-DUR 10 CM	7.00	1.07	15.98	2.87	3.64	0.00	5.48	1.46	2.56	0.31	1.25	34.62	4.95
7679683 INSULIN REG U-1	1.00	0.15	2.28	0.41	4.11	0.03	0.78	0.21	0.37	0.35	0.18	8.87	8.87
7679723 HETASTARCH 6%/S	5.00	0.76	11.42	2.05	183.71	1.48	3.91	1.04	1.83	15.64	0.90	222.74	44.55
7679928 PROCAN-SR 500 M	4.00	0.01	0.14	1.64	0.82	0.01	0.05	0.01	1.46	0.07	0.72	4.92	1.23
7679974 ANTICOAGULANT 5	1.00	0.09	1.27	0.41	7.43	0.06	0.44	0.12	0.37	0.63	0.18	10.98	10.98
160 PHARMACY	218.00	21.42	319.80	89.41	626.09	4.53	109.58	29.16	79.57	53.29	39.08	1371.93	6.29
7328601 IV. NEW START	1.00	0.29	4.37	1.53	10.39	0.08	1.50	0.40	1.36	0.88	0.67	21.46	21.46
7328602 IV. RESTART	1.00	0.22	3.24	1.13	7.69	0.06	1.11	0.30	1.01	0.65	0.49	15.89	15.89
7328604 IV. SITE ASSESS	6.00	0.51	7.56	2.64	17.96	0.13	2.59	0.69	2.35	1.53	1.15	37.11	6.18
7328616 IV NEW ASSESSME	1.00	0.26	3.90	1.36	9.27	0.07	1.34	0.36	1.21	0.79	0.60	19.16	19.16
7328708 HEPARIN FLUSH I	2.00	0.06	0.84	0.29	2.00	0.01	0.29	0.08	0.26	0.17	0.13	4.12	2.06
165 IV THERAPY	11.00	1.33	19.91	6.95	47.30	0.35	6.82	1.82	6.19	4.03	3.04	97.74	8.89
6801003 LEFT HEART CATH	1.00	1.68	55.92	15.44	112.23	0.00	26.76	6.36	16.20	10.64	9.40	254.64	254.64
6801015 FLOUROFIRST30MI	1.00	0.18	6.07	15.44	12.17	2.55	2.90	0.69	16.20	1.15	1.02	58.38	58.38
6801016 FLOUROADDITIONA	1.00	0.05	1.72	15.44	3.46	0.72	0.82	0.20	16.20	0.33	0.29	39.23	39.23
6801024 DIAGNOSTIC CATH	2.00	0.15	5.00	30.89	10.03	2.10	2.39	0.57	32.40	0.95	0.84	85.33	42.66
6801032 INTRO SHEAT SET	1.00	0.07	2.50	15.44	5.02	1.05	1.20	0.28	16.20	0.48	0.42	42.66	42.66
6801040 DISPOSABLE TRAN	1.00	0.14	4.54	15.44	9.10	1.91	2.17	0.52	16.20	0.86	0.76	51.64	51.64
6801072 LG STERIMED COV	1.00	1.88	62.83	15.44	126.10	26.40	30.07	7.15	16.20	11.95	10.56	308.59	308.59
6802001 2 HR CCLSS	1.00	1.88	62.83	15.44	126.10	26.40	30.07	7.15	16.20	11.95	10.56	308.59	308.59
190 CARDIAC CATH	9.00	6.04	201.41	138.99	404.22	61.13	96.40	22.91	145.80	38.32	33.85	1149.06	127.67
8419005 POST OPEN HRT E	2.00	92.12	0.00	12.96	1.58	3.71	5.31	1.12	7.69	2.89	1.83	129.19	64.60
220 PATIENT ED/REHAB	2.00	92.12	0.00	12.96	1.58	3.71	5.31	1.12	7.69	2.89	1.83	129.19	64.60
2310040 ROOM & CARE- 3E	5.00	25.47	229.27	4.96	126.31	32.28	59.57	14.91	107.95	26.11	22.40	649.24	129.85
3218421 TELEMETRY/DAY 3	5.00	25.47	229.27	4.96	126.31	32.28	59.57	14.91	107.95	26.11	22.40	649.24	129.85
250 3E	10.00	50.95	458.54	9.92	252.62	64.56	119.13	29.83	215.91	52.22	44.80	1298.48	129.85
2310080 ROOM & CARE- 5E	2.00	12.11	108.98	1.53	34.87	16.66	28.84	7.17	57.74	12.76	11.48	292.13	146.07
3290501 TELEMETRY/DAY 5	1.00	6.05	54.49	0.77	17.43	8.33	14.42	3.59	28.87	6.38	5.74	146.07	146.07
270 5E	3.00	18.16	163.46	2.30	52.30	24.98	43.27	10.76	86.62	19.14	17.21	438.20	146.07
2310020 ROOM & CARE- I	2.00	43.31	210.34	50.59	19.03	10.35	31.68	12.49	38.43	16.61	10.80	443.64	221.82

COST COMPONENT EXPENSES BY ORG/PATIENT/OEPT/CHARGE CODE
DATA REQUESTS #4-6 FROM TABLE 1
SAMPLE REPORT

	TOTAL UNITS	DIR FIX SALARY	DIR VAR SALARY	DIR FIX NON-SAL	DIR VAR NON-SAL	DIR FIX CAPITAL	IND FIX SALARY	IND VAR SALARY	IND FIX NON-SAL	IND VAR NON-SAL	IND FIX CAPITAL	TOTAL COSTS	TOT COST PER UNIT
DRG 106 CORONARY BYPASS W/ CAR													
3502000 CAROIAC OP ICE	2.00	43.31	210.34	50.59	19.03	10.35	31.68	12.49	38.43	16.61	10.80	443.64	221.82
3502004 INVASIVE PRESSU	2.00	43.31	210.34	50.59	19.03	10.35	31.68	12.49	38.43	16.61	10.80	443.64	221.82
3502007 TEMP INTERNAL P	2.00	43.31	210.34	50.59	19.03	10.35	31.68	12.49	38.43	16.61	10.80	443.64	221.82
300 ICU-EAST	8.00	173.23	841.35	202.37	76.13	41.41	126.73	49.96	153.74	66.43	43.20	1774.54	221.82
8662130 NUTRITION CONSU	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 MISCELLANEOUS	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1046881	509.00	446.74	3231.07	622.31	3021.10	368.28	921.79	238.98	1102.92	435.75	356.15	10745.09	21.11
6561025 [illegible]	1.00	3.19	43.19	2.01	72.99	6.46	11.46	2.14	15.37	5.23	4.74	166.77	166.77
5 23	1.00	3.19	43.19	2.01	72.99	6.46	11.46	2.14	15.37	5.23	4.74	166.77	166.77
6000056 3 HOURS (O R)	1.00	7.82	160.55	0.51	70.68	24.00	42.59	7.95	3.92	5.06	17.63	340.70	340.70
6000916 BOVIE MACH ELEC	1.00	0.41	65.72	0.51	29.48	9.82	17.43	3.25	3.92	2.11	7.22	139.88	139.88
6001518 TEFLON FELT/SH	1.00	0.58	2.94	0.51	7.55	0.44	0.78	0.15	3.92	0.54	0.32	17.73	17.73
6001567 FORGARTY INSERT	1.00	0.18	0.90	0.51	2.32	0.14	0.24	0.04	3.92	0.17	0.10	8.53	8.53
6001906 GLOVES (ENDERMI	4.00	0.34	1.71	2.05	4.39	0.26	0.45	0.08	15.69	0.31	0.19	25.47	6.37
6002151 PEN HEART RM SE	1.00	13.30	0.00	0.51	181.68	0.00	0.00	0.00	3.92	13.01	0.00	212.42	212.42
6002169 OPEN HEART SUPP	1.00	16.62	0.00	0.51	181.68	0.00	0.00	0.00	3.92	13.01	0.00	215.74	215.74
6002284 BULLDOGS-DISP	1.00	0.17	0.85	0.51	2.20	0.13	0.23	0.04	3.92	0.05	0.03	5.69	5.69
6002311 ACCU COUNT SHEE	1.00	0.06	0.28	0.51	0.71	0.04	0.07	0.01	3.92	0.15	0.09	8.07	8.07
6002448 VESSEL LOOPS	1.00	0.16	0.80	0.51	2.07	0.12	0.21	0.04	3.92	0.64	0.00	15.23	15.23
6002634 AORTIC PUNCH	1.00	1.29	0.00	0.51	8.87	0.00	0.00	0.00	3.92	0.12	0.07	7.27	7.27
6002641 VESSEL CANNULA	1.00	0.12	0.63	0.51	1.61	0.09	0.17	0.03	3.92	0.33	0.20	12.59	12.59
6002751 BOVIE PENCIL-RE	1.00	0.33	1.81	0.51	4.65	0.27	0.48	0.09	3.92	0.28	0.17	29.00	5.80
6002754 BIOCLUSIVE ORES	5.00	0.30	1.51	2.56	3.88	0.23	0.40	0.07	19.61	0.28	0.17	1046.63	49.84
10 OPERATING ROOM	21.00	41.67	237.70	10.77	501.77	35.53	63.05	11.77	82.35	35.93	26.10	1046.63	49.84
6812183 MURPHY BONE PUM	1.00	7.79	874.21	12.63	2028.72	61.40	160.85	35.15	40.46	77.41	70.61	3369.24	3369.24
6812188 OOUBLE CELL SAV	1.00	3.17	356.16	12.63	887.46	25.01	65.53	14.32	40.46	33.86	28.77	1467.39	1467.39
12 PERFUSIONIST	2.00	10.97	1230.37	25.26	2916.18	86.41	226.39	49.47	80.93	111.27	99.38	4836.62	2418.31
6222200 OIAL-A-FLOW 30	1.00	0.00	0.00	0.00	8.86	0.00	0.00	0.00	1.48	1.08	0.86	12.28	12.28
6222204 SINGLE OIP	1.00	0.00	0.00	0.00	8.86	0.00	0.00	0.00	1.48	1.08	0.86	12.28	12.28
6223442 MINERAL OIL	1.00	0.00	0.00	0.00	8.86	0.00	0.00	0.00	1.48	1.08	0.86	12.28	12.28
15 CASE CARTS	3.00	0.00	0.00	0.00	26.59	0.00	0.00	0.00	4.43	3.24	2.58	36.83	12.28
7306006 ANESTHES SUPP 3	1.00	1.77	24.02	1.12	40.60	3.59	6.37	1.19	8.55	2.91	2.64	92.76	92.76
7306026 INTRA-OP EKG	1.00	0.38	5.17	0.24	8.73	0.77	1.37	0.26	1.84	0.63	0.57	19.95	19.95
7306033 AUTO NON-INVA B	1.00	0.13	1.71	0.08	2.88	0.25	0.45	0.08	0.61	0.21	0.19	6.58	6.58
7306040 PERC SHEATH INT	1.00	0.68	9.23	0.43	15.60	1.38	2.45	0.46	3.28	1.12	1.01	35.64	35.64
7307044 SWAN GANZ CATHE	1.00	1.34	18.20	0.85	30.76	2.72	4.83	0.90	6.48	2.20	2.00	70.29	70.29
7307046 PULSE OXIMETER	1.00	0.35	4.70	0.22	7.95	0.70	1.25	0.23	1.67	0.57	0.52	18.17	18.17
7307047 ENO TIOAL CO2 M	1.00	0.35	4.70	0.22	7.95	0.70	1.25	0.23	1.67	0.57	0.52	18.17	18.17
30 ANESTHESIA	7.00	5.00	67.74	3.15	114.48	10.12	17.97	3.35	24.10	8.20	7.44	261.56	37.37

APPENDICES TO CHAPTER 15

APPENDIX 15-A

DEFINITION OF PATIENT INCLUSION

HCFA CABG DEMONSTRATION PROJECT

DEFINITION OF PATIENT INCLUSION

- Medicare as Primary Payor (5% of CABG ≥ 65 years of age have Medicare as secondary)

- Medicare - Age ≥ 65 (8% of Medicare CABG patients are < 65 years of age)

- CABG - Specific Coding Nuances (resulting in exclusion):

  -- DRG 104/105

  - CABG + Valve repair/replacement

  -- DRG 108

  - CABG + Ventricular aneurysm repair (37.32)
  - CABG + Cardiotomy (37.11)
  - CABG + Thoracic or Abdominal aortic resection (38.44)
  - CABG + Open mapping/ablation (37.33)
  - CABG + (Open) Coronary endarterectomy/angioplasty (36.03)
  - CABG + Septal defect repairs (35.5, 35.6, 35.7)
  - CABG + Replacement of other thoracic vessels (38.45)

  -- DRG 483

  - CABG + Tracheostomy (anytime in course)

- CABG + Inpatient Cath and/or PTCA Same Stay = Project DRG 106

- CABG + Outpatient Cath < 72^0 Preadmit = Bundled Project DRG 106

- CABG + Outpatient Cath > 72^0 Preadmit = Unbundled Project DRG 107
  (outpatient cath billed in routine manner)

- CABG + Cath Done Elsewhere (even if MHVI physician) = Project DRG 107
  (separate routine fee/hospital payment for cath)

- Inpatient Cath and/or PTCA Discharge = NOT Project DRG 112
  (routine billing process)

- Readmit for CABG (not time factor) = Project DRG 107

APPENDIX 15-B

EXPLANATION OF MEDICARE BENEFITS

DEPARTMENT OF HEALTH & HUMAN SERVICES
Health Care Financing Administration
Medicare Participating Heart Bypass Center Demonstration
P.O. Box 11972
Baltimore, Md. 21207-0972

Telephone Number
(410) 966-6558
Fax (410) 966-5768

Date 11/02/93

EXPLANATION OF MEDICARE BENEFITS

KEEP THIS NOTICE FOR YOUR RECORDS

Your Health Insurance
Claim Number is:

Always use this number when writing about your claim

THIS IS NOT A BILL

Approved payment is for services provided by: 360085	Service Dates From	Through
DEPT OF MEDICINE FOUNDATION	03/07/93	03/09/93
UNIVERSITY RADIOLOGISTS	03/09/93	03/12/93
DEPARTMENT OF SURGERY CORP	03/10/93	03/10/93
OHIO STATE ANESTHESIA CORP	03/10/93	03/10/93
UNIVERSITY RADIOLOGISTS	03/12/93	03/18/93
NOTE: THIS NOTICE REFLECTS YOUR LIABILITY FOR PHYSICIAN SERVICES ONLY.		

Your hospital is participating in a Medicare demonstration project using a simplified payment method which combines all hospital and most physician care related to your bypass surgery.

This single payment will make the billing process easier while keeping the cost to you at or below what it would otherwise be.

The total Medicare approved amount for your heart bypass surgery is $26,952.00 of which $23,972.00 is the Part A Medicare amount for hospital services and $2,980.00 is the Part B Medicare amount for physician services (of which Medicare pays 80 %).

Medicare has paid $26,356.00 for hospital and physician services.

The total amount that you are responsible for is:	Part A Deductible:	
	Part B Deductible:	$0.00
	Part B Coinsurance:	$596.00
Your hospital will send you or your private insurer a bill for this total amount.	Total Amount:	$596.00

If you have any questions about this notice, write or call us at the above address or telephone number.

APPENDIX 15-C

HCFA COVER LETTER TO SUPPLEMENTAL INSURERS

DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Care Financing Administration

6325 Security Boulevard
Baltimore, MD 21207

JAN 11 1994

Dear Supplemental Insurer:

The Health Care Financing Administration (HCFA) has implemented a 3-year bundled payment demonstration for coronary artery bypass graft surgery, entitled the Medicare Participating Heart Bypass Center demonstration. Hospitals participating in this demonstration receive a bundled payment for all Medicare Part A and Part B services for each Medicare patient receiving a heart bypass graft under DRG 106 or DRG 107. Ohio State University Hospitals in Columbus, Ohio is one of the hospitals selected to participate in this demonstration.

The purpose of this letter is to explain the payment procedures for the Medicare Participating Heart Bypass Center demonstration and minimize the difficulties participating hospitals are having in collecting Medicare coinsurance and deductibles from the beneficiaries' supplemental insurers.

The coinsurance and any deductible amounts listed on the Explanation of Medicare Benefits (EOMB) that are payable under the beneficiary's supplemental insurance coverage should be paid directly to the hospital. Many demonstration claims submitted by the hospitals to supplemental insurers have been refused or the payments were inappropriately made to individual physicians or the beneficiary instead of the hospital. These difficulties appear to be the result of changes in the EOMB format and payment procedures under this demonstration.

Explanation of Billing Process Under the Demonstration

The bundled Medicare payments for DRG 106 and DRG 107 include all hospital and physician services for the hospital admission. Under this demonstration, the hospital submits all hospital and physician bills (Medicare Part A and Part B claims) for each patient discharged under these two DRGs to the Office of Research and Demonstrations (ORD) at HCFA.

After the beneficiary's Medicare eligibility is verified, ORD forwards payment directly to the hospital for each surgical admission. This submission is in lieu of the filing of Part A and some Part B bills to the fiscal intermediary, as well as the filing of Part B physician claims to the Medicare carrier. This payment is all inclusive; individual services are not reviewed for either rate of payment or coverage. The hospital, in turn, makes payments to the appropriate physicians for services performed during each surgical admission.

In addition to collecting any Part A deductible, the hospital, not individual physicians, is responsible for collecting the entire Part B coinsurance amount as well as any Part B deductible owed. The hospital receives an EOMB prepared by ORD stating the total Part B coinsurance amount owed by the beneficiary for the surgical admission. This notice is different in format and content from the carrier- and fiscal intermediary-generated notices. Because of the bundled payment arrangement under this demonstration, this EOMB does not contain detail on procedure codes, amount submitted, amount allowed, or reason for disallowance. It does contain information on the application of Part A and Part B deductibles, and it identifies Part B coinsurance.

Computation of Beneficiary and Supplemental Insurer Liability

ORD has computed one Part B coinsurance amount for each DRG, which is less than what the combined amount would otherwise be for heart bypass surgery performed by these providers outside the demonstration. Thus, the supplemental insurer liability is reduced. In addition, the physicians at each demonstration hospital have agreed to have the hospital collect the coinsurance payments on their behalf.

Under this payment method, only one coinsurance claim is sent by the hospital to the beneficiary or his/her supplemental insurer instead of the multiple claims usually submitted by each physician who provided services during the admission. This coinsurance amount and any deductible amounts listed on the EOMB that are payable under the beneficiary's supplemental insurance coverage should be paid directly to the hospital.

Note that these procedures apply only to hospitals participating in this demonstration, and only to payments for episodes of coronary artery bypass graft surgery at those participating hospitals.

Your cooperation with this important demonstration will facilitate the billing process and help us to better evaluate this bundled payment arrangement. Please contact Ms. Marianne Bayer at HCFA on (410) 966-6558 if you need any further information. Thank you for your cooperation.

If you have any questions regarding the $596.00 due, please contact Ms Bayer at the number above.

Thank You

Sincerely,

Joseph R. Antos, Ph.D.
Director
Office of Research and Demonstrations